

For Girls
and the
Mothers
of Girls

Mary G. Hood

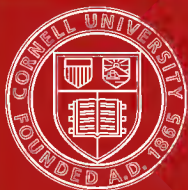
LIBRARY OF THE
NEW YORK STATE COLLEGE
OF HOME ECONOMICS
CORNELL UNIVERSITY
ITHACA, NEW YORK



CORNELL UNIVERSITY LIBRARY



3 1924 053 969 261



Cornell University Library

The original of this book is in
the Cornell University Library.

There are no known copyright restrictions in
the United States on the use of the text.

FOR GIRLS AND THE MOTHERS OF GIRLS

FOR GIRLS AND THE MOTHERS OF GIRLS

A Book for the Home and the School
Concerning the Beginnings
of Life

By
MARY G. HOOD, M. D.

With Introduction by
SARAH LOUISE ARNOLD

INDIANAPOLIS
THE BOBBS-MERRILL COMPANY
PUBLISHERS



COPYRIGHT 1914
THE BOBBES-MERRILL COMPANY

he
H Q 51
76

Printed in the United States of America

he 5255 ✓ K O 25. 0

PRESS OF
BRAUNWORTH & CO.
BOOKBINDERS AND PRINTERS
BROOKLYN, N. Y.

CONTENTS

CHAPTER		PAGE
	INTRODUCTION	1
I	A LETTER TO THE GIRLS WHO READ THIS BOOK	9
II	HOW PLANT LIFE BEGINS	11
III	HOW ANIMAL LIFE BEGINS	15
IV	CONCERNING THE EGG	18
V	THE WONDERFUL GERM CELL	23
VI	CONCERNING MAMMALS AND THEIR YOUNG	27
VII	THE GROWTH OF THE YOUNG MAMMAL	30
VIII	THE EGG AND THE OVARY	35
IX	THE REPRODUCTIVE ORGANS	39
X	THE PELVIS AND THE PELVIC ORGANS	44
XI	HOW THE OVUM FINDS ITS WAY FROM THE OVARY TO THE UTERUS	46
XII	HOW CELLS GROW AND MULTIPLY	49
XIII	HOW THE POLLEN UNITES WITH THE OVULE	55
XIV	FERTILIZATION: OR, UNION OF THE OVUM AND THE SPERM	60
XV	CONCEPTION AND MOTHERHOOD	67
XVI	THE DEVELOPMENT OF THE HUMAN EMBRYO	72
XVII	PROVISIONS FOR THE GROWTH OF THE HUMAN INFANT	79
XVIII	THE BIRTH OF THE CHILD	85
XIX	HOW THE CHILD IS FED AFTER BIRTH	92
XX	MENSTRUATION	97
XXI	WHY THE GIRL SHOULD KEEP WELL	103
XXII	HYGIENE OF THE MENSTRUAL PERIOD	107
XXIII	CONCERNING EXERCISE	113
XXIV	CONCERNING CLEANLINESS	122
XXV	CONCERNING MOODS AND EMOTIONS	130
XXVI	CONCERNING FRIENDSHIPS	140
XXVII	CONCERNING MARRIAGE	148
XXVIII	CONCERNING PARENTHOOD	155

THE MOTHER

*Some there be that sow the seed and reap the
golden grain;
And some there be that buy and sell, and find
therein their gain;
And some do build with skilful craft; and some
with curious art
Do paint or carve; and some do sing. So each
doth do his part.*

*And some there be,—most blessed these,—to
deeds of mercy given;
And some do heal the sick, and some do lead the
way to Heaven;
But holiest task of all is thine, oh Mother with
thy child!
For thee and him all workers toil, all craftsmen
carve and build.*

*Make pure thy heart, oh Mother-saint, that pure
thy son's may be;
Make strong thy soul, with courage strong, that
he may learn of thee;
Make true thy word, thy thought, thy deed, that
truth may make him free;
And pour thy noble life for his! Thus safe our
land shall be.*

—SARAH LOUISE ARNOLD

FOR GIRLS AND THE MOTHERS OF GIRLS

INTRODUCTION

*To the Mothers and Teachers
of Girls, This Foreword
is Written.*

Among the problems connected with the education of youth none is more insistent or more serious than the question which is presented in the pages of this book. How may young people be taught the truth concerning the physical beginnings of life, with such simplicity and sincerity of statement as shall enable them to secure a reasonable understanding, and with such appeal to the moral nature as shall tend to right and wise conduct in these matters? This is perhaps the greatest problem now presented to thoughtful parents and teachers.

In the past we have kept silence concerning

FOR GIRLS AND MOTHERS

this matter. Text-books in anatomy and physiology have omitted all reference to the beginnings of reproduction. When children have asked questions parents have answered with some traditional myth, or have turned them away. "Ask me when you are fifteen," said a mother to her son, who had earnestly inquired concerning the advent of his baby sister. She recited with some pride the means by which she had postponed the answer to his question. When the boy was fifteen he did not return to ask. Others in various fashions had enlightened him.

Heretofore we have assumed that the responsibility for such instruction rested with parents and physicians, while in some cases the church has lent its aid. The subject, as we have said, has with design been omitted from text-books; the schools have had little or no part in such teaching.

It is not yet clear that instruction in sex hygiene can take place in the ordinary schools,

INTRODUCTION

under the direction of teachers who have had only the ordinary preparation. On the other hand, it is increasingly evident that unless adequate instruction is provided by the wise and competent, inadequate, perverted and vicious theories will be set forth by the ignorant, the designing and the unscrupulous. All boys and girls should eventually gain the appropriate knowledge under some sort of instruction. The parent can not evade or shirk the responsibility. If the home has been negligent, and has failed to fulfil its trust, then, as in other matters of education, the interests of the community are involved, and some other agency must provide suitable instruction. All signs point to a new and intelligent insight on the part of both mothers and teachers. No longer are the questions confined to the children alone; but their parents and teachers are seeking to find the true method of imparting this essential knowledge.

It is in answer to these questions that this

FOR GIRLS AND MOTHERS

book has been written. It has come out of a fruitful experience during which girls and mothers, a long procession, have turned to a wise physician and have earnestly asked the questions which are answered in these pages. Often it has been necessary for the physician to give instruction far too long deferred, knowing that the omission has been followed by disastrous experiences. Many a mother has said, "I would have taught my daughter if I had known how." Many a girl, expressing complete ignorance of principles which she needed to know, has said bitterly, "Where could I go to learn? My mother has never been willing or able to answer my questions."

The necessity of knowing is clear; this book has been written in response to earnest solicitations. We are assured that the answers which have been given to these girls and to their mothers will be useful to hundreds of other girls and young women, or will serve as a help to those who need to instruct in these matters

INTRODUCTION

any individual girl or group of girls. The mother who has not learned the language in which such truths may be imparted will be helped by studying these pages. She will discover how the mysterious truth may be spoken simply, naturally, clearly and impersonally. She will then be able to answer the insistent questions; or, if she chooses, the book may speak for her,—for it is a book which she may safely confide to her daughter's keeping.

This book is suitable also for use in the hands of the teacher, who can more readily impart such truths when supported by the pages of the text. It has been written directly to the girls who need it, and in simplest language; for that reason it may practically pave the way to a clearer understanding of the art of teaching these fundamental principles.

The fact that the subject of sex hygiene has been tabooed has led to a false emphasis upon the facts relating to it. Direct, clean, dignified and sincere reference to these matters, when

FOR GIRLS AND MOTHERS

necessity arises, ought to help to restore the subject to its normal relation to general hygiene, to biological truths, to social conduct.

But we must remember that no enlightenment of the intellect will alone suffice to influence conduct. To the subject under discussion mighty motives are attached. Right conduct connected therewith can be secured only by the development of fine social ideals and by the strengthening of the individual will. Parents can not rest back easily, washing their hands of responsibility, after the initial instruction has been given. The development of the ideal, the fixing of the habits, the strengthening of the will, which are concerned in right action, are matters of lifelong education. These are indispensable; they are intimately concerned with the solution of this great problem. The initial instruction insures a clearer understanding and a more honest teaching.

It is a pleasure to commend this book to

INTRODUCTION

girls, their mothers and teachers, with the assurance that it will prove a wise counselor and a faithful friend.

SARAH LOUISE ARNOLD

Simmons College

FOR GIRLS AND THE MOTHERS OF GIRLS

CHAPTER I

A LETTER TO THE GIRLS WHO READ THIS BOOK

My Dear Girls:

As I have been writing these pages I have had in mind the young girls who, in the years past, have come to me to ask questions concerning the beginnings of human life and their own relation to that great subject. It has been a privilege to talk with these girls, and I have been heartily glad when our talks have led to a clearer understanding of the problems of life that were confronting them.

Every girl has a right to know the answers to the questions which these girls have asked. In no other way can she meet with wisdom and strength the great responsibilities which

FOR GIRLS AND MOTHERS

await her. It has often been true that the girls who talked with me have been burdened with heavy anxiety and care. Sometimes they carried a bitter load which had come as a result of their ignorance.

It is my earnest desire to substitute knowledge for ignorance in the lives of girls who have not yet been taught the truths which these pages attempt to make clear, so that they may go forward with clearer vision, and attain truer strength as they face the sacred responsibilities of wifehood and motherhood.

I have written with simplicity and directness, as if I were speaking to each one of you, face to face and alone, as I have in the past spoken with other girls. Many of these girls have been very dear to me. I have watched their path from childhood to womanhood and have rejoiced in their increasing beauty and womanliness. With no less earnest desire I send these pages to you, confident that you will bring to them sincerity and reverence.

CHAPTER II

HOW PLANT LIFE BEGINS

As we wish to learn the origin of life, and particularly of human life, let us look around us for a moment, to see how much we already know about the manner in which life begins.

We are more or less familiar with plant life; we know that plants come from seeds. The farmer plants his corn in the ground and expects after a few days to see his field covered with tiny green leaves. Nearly every kernel of corn that he dropped into the ground has sent up a new plant. The gardener plants beans and soon rejoices in the climbing bean vines. If he plants a cucumber seed, two little leaves will appear above the ground where each seed has been planted, and he knows that he has in each plant a young cucumber vine.

FOR GIRLS AND MOTHERS

How is it with the flower garden? If we plant nasturtiums, morning-glories, foxgloves, marigolds, we find, before many days, a forest of young plants, all so much alike that at first we are unable to tell one plant from the other; yet we know that from each seed grows a plant "after its own kind."

It seems less easy to realize that all trees come from seeds; that the great oak tree grows from the little acorn and that the tall pine developed from one of the delicate winged seeds that lie hidden in the pine cones. We have walked along the country road and have seen hundreds of young maple trees growing beneath the mother tree where the winged seeds have fallen. Squirrels hide nuts and thus plant trees. The seed of the willow may be blown for miles to the place where it takes root, and the seeds of various trees are often carried by birds to places far distant from the parent plant.

Every young vegetable, flower or tree, if it finds the right conditions of growth, in time

HOW PLANT LIFE BEGINS

becomes large enough to put out blossoms, from which in turn come new seeds to make plants for the coming year. Have you ever stopped to think that, year after year, we have the same flowers, the same fruits, the same vegetables, that we knew the year before?—the same that our fathers had before us, and our grandfathers, and our great grandfathers? Seed-time and harvest do not fail; every plant bears fruit after its kind.

Nature makes a wonderful provision for continuing the life of plants. She prepares great numbers of seeds, many more than could possibly be needed if each one were to become a new plant. An apple tree bears hundreds of apples; you may have seen ten or more barrels of apples gathered from one tree. Since every apple contains from six to a dozen seeds you will see that the apple tree yields thousands of seeds every year, as if it expected to rear thousands of young apple trees to take its place when it is gone.

The myriad seeds of the maple or elm tree

FOR GIRLS AND MOTHERS

are blown about by the wind. Some fall upon rocks, others into ponds, some are eaten by birds; but many, in spite of these losses, fall upon fertile ground and grow up, making new maple or elm trees. One would think that nature had reckoned upon all this possible loss and had determined that enough seeds should be provided so that the new harvest could not fail.

Try some day to pick every blossom of the dandelion plant, or the goldenrod, or the nasturtium, and see what happens. The plant will strive to blossom again, no matter how late in the season it may be. This purpose—this determination—to produce a new life like itself, is inherent in every plant. It is a part of life itself.

CHAPTER III

HOW ANIMAL LIFE BEGINS

You must have already observed that exactly as the new life comes from the seed of the plant, so certain animal life proceeds from the egg. Every boy has found masses of frogs' eggs in the quiet water of the swamp and has watched to see them develop into the young tadpoles, which, by and by, are to be full-grown frogs. We all have found the eggs of the spider tucked away in the cobweb nest, or the eggs of the caterpillar glued upon the bark of the tree. The gipsy moth lays hundreds of eggs on the barks of trees, covering them with a hairy web to protect them until spring. We have seen the four pale blue eggs of the robin in her nest, or the brown spotted eggs of the field sparrow in the grass. If we had

FOR GIRLS AND MOTHERS

eyes to see we should find thousands of eggs in fields and woods every spring and summer.

Exactly as the nasturtium brings forth a vine which can never be anything but a nasturtium vine, and the hollyhock seed sends up the tall stem of the hollyhock, so every egg of insect or bird brings forth its own type of life. From the spider's egg comes forth the spider; from the robin's egg a robin; each brings forth a life of its own sort or kind.

You are not so familiar with the eggs of the fish, yet you will remember finding within the herring thousands of eggs, massed together in what is known as the roe of the fish. You will judge from this that the eggs of fishes are nearly as numerous as the seeds of plants; and this is true. Just as the seeds are blown about and may not be able to take root, so the eggs of the fish are subject to many dangers. The same thing is true of insect life. Birds eat the eggs of insects; big fishes eat the little ones; the eggs of the fish may be lost in the

HOW ANIMAL LIFE BEGINS

water. Therefore, the eggs of these creatures are produced in great numbers, so that, whatever losses may come, life may follow life, and the race of insect or fish may not perish from the earth.

Thus far we have observed, and have partly understood, the beginnings of life in the plant, the insect or the fish. But you wish to know more; and chiefly you are concerned with the beginnings of human life. We shall understand these beginnings only as we learn the conditions under which other life begins. Before we can answer your question concerning the human child we must follow clearly the beginnings of life in the plant and the animal. In the next chapters we must therefore give further attention to the egg and the seed.

CHAPTER IV

CONCERNING THE EGG

Let us think for a moment of the egg which was a part of your breakfast this morning. We know that eggs are good for food and do not often stop to consider that they were intended to fulfil a different purpose. If the mother hen had been able to hide her egg away in some snug place where she could keep it warm, she would have appeared after three weeks' time followed by a small, fully formed chicken which had pecked its way through the shell.

Let us suppose for a moment that you had the power to create just such a fluffy, little, yellow ball, with its bright eyes and its slim delicate legs and feet. Let us suppose that you could endow it with life and all the powers

CONCERNING THE EGG

and instincts that belong to a chicken just hatched from an egg. Within a day after you had given this wonderful creature to the world your name would be heralded around the globe. You would become greater than any inventor the world has ever known. For no man has ever been able to make a living breathing creature. Yet from this common egg, which you and I think we know so well, this wonderful life may proceed.

Let us examine the egg of a hen to find what there is in it to produce the new life. It certainly is not in the hard shell; this is only for protection. The mother hen sits upon a nest full of eggs—a dozen or more—three long weeks. As she steps back and forth, into or out of her nest, her tough hard nails would surely break some of the eggs if it were not for their protecting shell and their rounded shape, which permits them to roll to one side, so that her feet sink down between them. If she should break one of her eggs

FOR GIRLS AND MOTHERS

before the chicken had developed she would lose one of her brood.

The shell is lined by a thin membrane, very smooth on the inside. This smooth surface protects the delicate body of the young chicken, so that it may not be injured by rubbing against the shell. During the three weeks when the mother hen is sitting upon the eggs, the chicken is growing within. Bone and muscle, skin and feathers are developing, and they need a large amount of nutriment. The white and the yolk of the egg furnish just the sort of nutriment needed to form each and every part of the chicken. As the chicken grows the food disappears.

You have not observed anything within the egg except the white and the yolk. Where, then, does the new life begin?

Look carefully over the surface of the yolk and you will find a small white spot. If we place this spot under the lens of a microscope we shall find in it another little egg, very

CONCERNING THE EGG

much like the larger egg of which it is a part. This small egg is composed of a tiny sac, or case, like the membrane which surrounds the large egg, although this case is much thinner and more delicate. Within this sac is a minute drop of sirup-like liquid, called protoplasm. Within the protoplasm there is a firmer bit of protoplasm. This is called the nucleus. This very small egg is the real egg and from this the chicken grows.

This tiny egg, or germ cell, as the scientists call it, contains the life-giving element, which causes the chicken to grow. This very small particle is endowed with the power to grow. Because this germ cell is present in the egg, the young chicken can, under right conditions, be developed within it. The real marvel of the egg, then, is the germ cell. The power of this cell transforms the yolk and the white into all the different elements of the chicken's body,—bone, muscle, nerve, arteries, skin, feather,—each placed in its proper rela-

FOR GIRLS AND MOTHERS

tion, to make the body complete. More than that, this delicately balanced body is endowed with life, so that it can move and grow, so great is the wonderful power contained in the tiny particle of protoplasm which the scientists call the germ cell.

CHAPTER V

THE WONDERFUL GERM CELL

Every thing that lives and grows begins as a germ cell.

Nearly all plants, as we have already learned, come from seeds. Every seed contains this bit of protoplasm with its nucleus, which we call the germ cell.

In the seed, as in the egg, more or less food is packed about the germ cell. Upon this food the young plant must depend until it can gather its own nutriment through its roots and leaves, from the earth and the air.

Some plants have a large quantity of nutriment stored in the seed, and others apparently have a very small amount; but each seed stores sufficient food to sustain the life

FOR GIRLS AND MOTHERS

of the young plant until it is able to depend upon itself. Everybody knows the two thick food leaves within the bean. On these the young plant or embryo feeds as it is developed from the germ cell. In like manner the corn, the pea or the mustard plant, in the beginning lives upon food stored in the seed.

This foodstuff of the plant is often used by man for food, just as he uses the food which was stored in the egg for the young chick. We know this seed food in the flour which comes from the wheat, the meal which comes from the corn, the rye, or the oats, and we use it also in peas, beans and nuts. Man would go hungry were it not for the food which nature provides for her plant children.

All the eggs which we know, eggs of birds, large and small, eggs of fishes, frogs and turtles, eggs of all the insects, moths and butterflies, are like the seeds of plants and the eggs of the hen. They contain a germ cell which holds the beginning of a new life like that of

THE WONDERFUL GERM CELL

the mother that laid the egg, or the plant from which the seed came.

The eggs differ greatly. They may be large, they may be small. They may be covered with a hard shell or a very delicate membrane; but all contain a germ cell. And these cells, coming from different creatures, are so nearly alike in appearance that the microscope does not show us any difference in their structure. Each of these various germ cells is surrounded by sufficient food to sustain the young life until it is ready to emerge from the protecting shell or membrane.

Although these cells look so much alike, and are outwardly so much alike, in their heart of hearts they are very different. The hidden and mysterious power in each germ cell causes it to produce a creature just like its mother. Nature never makes a mistake. Although the germ cell of the chicken and of the robin seem to be alike, the robin's egg never hatches a chicken, nor does the chicken's egg hatch a

FOR GIRLS AND MOTHERS

robin. This law is absolute; the germ cell will always produce a being like its parent,—“after its kind.” As Margaret Morley says in the charming book, *Life and Love*,—

“It is a subject of never-ending wonder that within each of these tiny reproductive cells lie hidden all the peculiarities of the parent from which it came. In a trout egg is contained trouthood. Form, size, spots, habits,—all are in some mysterious way impressed upon these atoms, budded off from the body of the parent.”

CHAPTER VI

CONCERNING MAMMALS AND THEIR YOUNG

We have studied the egg of the hen and have found within the hard shell the germ cell with ample provision of food for the growing chick. We have learned also that the shell is intended to protect the delicate young creature which is growing within.

You know other animals which bring forth their young without any appearance of the egg. So far as you know, you would say that there is no such thing as the egg of a mouse or a squirrel or a cat.

It is true, however, that each of these creatures comes, like the chicken, from an egg. The great difference in the development of the young lies in the fact that the germ cells are differently protected in the early stages of their development. They are retained within

FOR GIRLS AND MOTHERS

the body of the mother, in organs that are provided for them. This is the reason why you have never seen them.

Numerous germ cells, which are true eggs, as we have called them, lie within the body of the mother. But when these cells develop they are not deposited as is the egg of the insect, or of the bird, in some outer place; on the contrary, they remain within the body of the mother, where they are safely shielded from harm and are much more carefully protected from any injury than are the eggs which you have been observing.

We have learned that many creatures which lay eggs produce them in large numbers. Some one has taken the trouble to count the eggs in the roe of a fish and has found that one roe contains many millions of eggs. The common house-fly lays thousands of eggs; even the hen lays an egg every day for several months and cares for a brood of a dozen chickens at one time.

MAMMALS

We do not find so great numbers, however, in what are called the higher animals. Rats and mice, cats, dogs and pigs, produce several young at one time; the larger animals usually bring forth but one, or rarely two. Since the young are so few in number it is necessary that they should be much more carefully protected than are the young creatures which are hatched in such profusion, for, as we have already said, nature takes the utmost pains to make secure the new life of each generation.

The young of these creatures are therefore retained within the mother's body until well developed into animals like the parent. By this means they are protected during the long period which is required for maturing the egg.

Animals which carry their young within the body, while it is growing from the tiny germ cell to the fully developed creature, are called mammals. The cat, the dog, the cow, the horse, the deer, the tiger, the elephant are mammals.

CHAPTER VII

THE GROWTH OF THE YOUNG MAMMAL

You will wish to know many things concerning the development of the young mammal, which are less plain to you than the early history of the plant, the insect or the bird.

How long is this process of development? The period of carrying the young differs with different animals, according to their size. The smaller mammals require a short period for the development of the young, while the larger ones require a much longer period. The little guinea-pig carries her young but three weeks. They are then sufficiently developed to continue their lives apart from the mother. The cat requires nine weeks, the cow nine months, while the elephant, the largest mam-

THE YOUNG MAMMAL

mal, needs twenty-one months in which to develop the young elephant. A baby elephant is about three feet tall and weighs from one hundred and fifty to two hundred pounds.

All eggs which are deposited in some place outside of the body of the mother contain nutriment for the growing young. The mammal, however, provides no such food-case in which the food for her baby is stored. The young must be fed, therefore, in some other way while they are growing within the body of the mother. Nature has provided that the germ cell shall become attached to the wall of its enclosing and protecting nest, within the body of the mother, in such a way that it may receive food directly from her.

The mammal, then, not only carries her young within her body during its development, but she also feeds it from her own blood. The food which the mother eats is transformed into the right food for the new growing body within, and is carried to it through the chan-

FOR GIRLS AND MOTHERS

nels by which her blood is distributed through her body. Thus the attachment between the mammal mother and the child is much closer than in the lower forms of life, where the eggs are separated from the mother.

When the hen has sat three weeks upon her nest, keeping warm the eggs which hold her growing chicks, they are able to pick their way out of the egg-shell and emerge at once with the power of running about and caring for themselves. Although they are for a little while led about by the mother, and brooded by her at night, they very soon shift for themselves.

After the young mammal, however, is brought forth into the world—a perfect little creature like its parent—it is, nevertheless, still weak and immature and is completely unable to live without the continuance of the mother's care.

We have all watched a little kitten when it was very young, with its closed eyes and its

THE YOUNG MAMMAL

unsteady legs. In attempting to walk it stumbles around in a most helpless manner. In this feeble condition the kitten needs the mother's care, so the cat cuddles her kittens close to her warm body and there they find the nourishment provided for them in the mother's milk. For several weeks the young kitten is thus fed. You will see, then, that the mammal not only carries her young within her body and nourishes them with her own blood before their birth, but she also provides milk from her breasts to feed them after birth, until they are able to find their own food. This power of feeding the young from her own body gives to the mammal her name. Mammal comes from the Latin word *mamma*, which means the gland that secretes the milk, the mammary gland as it is called.

You are accustomed to think of animals as creatures completely different from yourself. They have not the power of speech. You even question whether they can think. It may be

FOR GIRLS AND MOTHERS

that you have never realized that you, too, are an animal, in the real sense of the word. If you stop to think you will discover many likenesses between the body of the animal and your own body.

All living beings which have the power of sensation and motion are called animals. You and I, then, are human animals. You will probably realize at once that the human animal is a mammal.

This is true; the human infant grows from an egg, a germ cell,—as do all other animals. The human mother retains within her body this germ cell—or ovum—during its development, brings forth her child when it is a completely developed human baby, and after its birth, cares for it and feeds it with milk from her breasts.

CHAPTER VIII

THE EGG AND THE OVARY

The egg, or ovum, from which the child is developed, is exceedingly small. One hundred and twenty-five ova, laid in a row, would be only one inch in length. You will find it hard to realize this; but let us try.

If you will take a pen, and make a row of little dots as close together as you can, you will find that you can crowd only fifty or sixty dots into an inch; yet more than double this number of human ova can be laid side by side within the inch. You can hardly think of so small a particle one one-hundred-twenty-fifth of an inch in diameter,—so small that you can see it only by the aid of a microscope.

A large number of these tiny ova, or germ cells, are hidden away in the body of every

FOR GIRLS AND MOTHERS

mother, whether it be a mother insect, a fish, a bird or a mammal. You may have seen the body of a hen when it was opened and being prepared for the table. If so, you have perhaps seen in it a large number of eggs. One of the eggs may have been almost ready to be laid. It was covered by a soft white membrane, but was without the hard shell. Another was merely a full-sized yolk, the white of the egg having not yet been formed; then there were many smaller yolks, varying from the size of an acorn or a pea, down to the head of a pin. Besides these, there were really a great many eggs, so small that you could not recognize them as being eggs. These differed in size according to the state of their development. The smaller ones were still connected with two little organs, called ovaries, one of which might be seen on either side of the backbone of the hen.

These ovaries contain the germ cells which will, one by one, grow into full-sized eggs.

THE EGG AND THE OVARY

These germ cells gradually grow larger by gathering to themselves the substance called the yolk of the egg. When they are large enough they leave the ovary and enter a tube called the oviduct. Here they move slowly along, growing larger and larger as they progress, until finally the yolk is fully grown. Now the white begins to be added, and little by little, it accumulates, until there is enough food for the young chicken that is to be. Before the egg reaches the end of the oviduct, it has become covered by a thick white membrane; and then, as it turns around in its motion through the lower end of the tube it is coated by a soft substance, composed chiefly of lime, which forms the shell. When the shell has been added the egg passes out of the oviduct into the nest, or is laid, as we say. As soon as it reaches the air the coating of lime hardens, forming the brittle shell with which we are so familiar.

The egg of the hen, then, comes from the

FOR GIRLS AND MOTHERS

ovary, and passes through the oviduct into the nest. You have doubtless already judged that the ovary is so named because it produces the ova, or eggs. You will expect, therefore, to discover what is also true, that in the human mother the ova are produced in the ovary, or ovaries, for there are two. We shall read still more about these important organs in the next chapter.

CHAPTER IX

THE REPRODUCTIVE ORGANS

The human ovaries are quite small, about the size and shape of a Lima bean. Each ovary, like the ovary of the hen, which you have observed, contains a large number of germ cells, or ova.

In all mammals the ova escape from the ovary at regular intervals. When an ovum has grown large enough to leave the human ovary, it is received into an oviduct, something like the oviduct of the hen, which carries it away from the ovary down into the organ provided for it.

This oviduct, or tube, is quite short, only about four inches in length, and narrow, as it needs to admit only the very small human egg. It is larger at the end toward the ovary than

FOR GIRLS AND MOTHERS

it may receive the ovum the more readily when it leaves the ovary; but at the other end it is very narrow, admitting only the finest needle. This tube is lined by a membrane covered with very fine projections, or hairs, called cilia, which have a constant waving motion, giving the effect of millions of little paddles. These cilia sweep the ovum along through the tube, for the ovum can not move of itself.

The narrow end opens into what we have previously called the nest, where the ovum is to lie during its long period of development into a complete baby. This organ is commonly called the womb, but we shall know it by its Latin and scientific name, the uterus. This uterus needs to be only a very small organ, because it receives only a very small egg; but it must have the capability of growing into a very large chamber, for it finally has to hold the growing baby.

The uterus is about the size and shape of a small pear, so placed that the stem points

THE REPRODUCTIVE ORGANS

downward, and having a small cavity in the middle which holds the ovum. The walls of the uterus are very thick and are made of strong muscles, because their strength and muscular power will be needed when it comes to its final great work. The uterus is lined by a soft smooth lining, making it a most perfect receptacle for the delicate ovum.

The tubes which run from the ovaries to the uterus are called the fallopian tubes. They enter the uterus at its thickest part by two very small openings, one on either side.

The ovum reaches the uterus through one or the other of the fallopian tubes. If it comes from the right ovary it enters through the right tube, if from the left ovary it finds its way through the left tube. It may remain in the uterus a few days or many weeks, but every ovum must finally pass out of the uterus.

At the lower end of the uterus there is an opening, which we call the mouth of the uterus. This opening is very like the hole which would

FOR GIRLS AND MOTHERS

be left if the stem of the pear were pulled out, and, as the pear is inverted, the opening points downward.

The mouth of the uterus, through which the ovum is finally to find its exit, opens into a tube which we call the vagina. This tube is about the size and shape of the finger of a large glove. At the upper end it closes around the small part of the pear so that the mouth of the uterus opens inside the vagina, which is simply a passageway from the uterus to the outside.

The vagina, as well as the uterus, must be capable of great expansion, for the time comes when it needs to be much larger; its thin muscular walls must become much thicker and stronger when it comes near the time of its greatest use. We shall learn more about this in another chapter.

These organs, the fallopian tubes, the uterus and the vagina, together with the ovaries, are the parts of the body which are prepared for

THE REPRODUCTIVE ORGANS

the making of the new life; they are called the reproductive organs. They are so arranged as to make a long canal through which the ovum travels in its development. Just as the food goes into the mouth, passes through the esophagus, the stomach and the intestines, so the ovum passes through the three different parts of this genital canal,—the fallopian tube, the uterus and the vagina. The reproductive organs are hidden away in the very lowest and most protected part of the abdomen.

CHAPTER X

THE PELVIS AND THE PELVIC ORGANS

The cavity which holds the reproductive organs is known as the pelvis. It is shaped like a bowl and is a little larger than a baby's head. The sides of it are mostly bony but they are well padded with muscle and fat and lined with a soft smooth membrane.

The uterus is swung in the middle of this bowl-shaped pelvis, between the folds of a membrane which is stretched from one side of the pelvis to the other. The ovaries are on either side of the uterus, about two inches distant. Attached to each ovary is a fallopian tube, leading to the uterus. The ovaries and tubes are also held within the folds of this membrane, on either side of the uterus.

This membrane which encloses the uterus,

THE PELVIC ORGANS

ovaries and fallopian tubes, is called the broad ligament. It holds these organs in position midway of the pelvis, where they are not liable to pressure or injury, for the organs of reproduction are very sensitive and therefore nature protects them very carefully.

Since the reproductive organs are situated in the pelvis and enclosed by it, they are often called the pelvic organs.

CHAPTER XI

HOW THE OVUM FINDS ITS WAY FROM THE OVARY TO THE UTERUS

You have learned the names and the uses of the organs of reproduction—the ovary, the fallopian tubes, the uterus and the vagina. Of these, as you already know, the ovary is the organ which contains the ova. In the body of the new born girl are all the organs which belong to the mature woman. Some of these organs begin their work at once,—the lungs, the heart and the stomach—but the ovary, with its thousands of tiny germ cells, is not called upon to work until the girl reaches the age of puberty, as it is called, or the time when the menstrual flow begins. At this time a few of the ova begin to take on new life. They become larger and a fluid gathers in the sac which surrounds them. As these ova grow

FROM OVARY TO UTERUS

they are gradually pressed toward the surface of the ovary, until one ovum, outstripping the others, breaks through the membrane covering the ovary. This occurs about every twenty-eight days, usually near the time of menstruation.

Now nature has made a marvelous provision to receive the ovum as it falls from the outer surface of the ovary. You will remember that the fallopian tube opens at one end into the uterus. This opening is extremely narrow. The other end of the tube, which is wider, is divided into a number of soft little fingers, like a fringe. If we could lay a fallopian tube into water we should find these fingers, or fringes, floating out like little branches of sea moss. One of these fingers is attached to the ovary, and the others float freely until the ovum is about to escape from the ovary. Then these little fringes, or *fimbriæ*, as they are called, in some way—which we do not wholly understand—seize upon the ovum and

FOR GIRLS AND MOTHERS

guide it into the fallopian tube. In the tube it is swept along by the cilia until, in the course of a few days, it reaches the uterus.

We have said that the ovary contains thousands of ova; but you know well that no human mother has thousands of babies. Many of these ova never mature but merely shrink away and remain in the ovary. Others find their way down through the fallopian tube, but do not meet with the conditions necessary to make a new life. They, therefore, die and are either absorbed or are washed away by the fluids of the uterus.

CHAPTER XII

HOW CELLS GROW AND MULTIPLY

We have been considering the ovum, or germ cell, and its relation to new life. Before we can go further we must understand how cells grow and multiply.

All living things, both plants and animals, are made up of cells, each of which has its own work to do. All these cells are alike in structure, though they differ in form. They consist of a bit of protoplasm and a nucleus, and are often surrounded by a cell wall.

Cut a thin slice from the stem of a geranium and place it under the microscope. You will see the little cells packed together like the larger cells of a honeycomb, or like bricks in a wall. Look through the microscope at any part of muscle or nerve and you will find the

FOR GIRLS AND MOTHERS

same cell structure. The cells will differ much in size and shape, however, according to the organ of which they are a part.

In your own body each muscle is formed of long slender cells, so placed as to make little threads or fibers. A number of these fibers bound together make a muscle. The bone cells are nearly round and are packed together with a large quantity of lime which gives the required stiffness; the cells of the nervous system are quite irregular in shape, having many points. These cells, so different from one another, are each made of protoplasm and each one contains its nucleus.

Many millions of these cells are required to make our bodies. As we grow, the number of cells must be constantly increasing. The body of a man requires more cells than does the body of a boy. The full-grown tree contains many more cells than the tiny sapling; it is clear that the cells must multiply as the tree grows. Moreover, if the tree is cut or the

HOW CELLS GROW

body is wounded, nature must replace the cells and she does this very rapidly. Such growth is constantly taking place in the human body, also.

These cells of the human body are increased in a wonderful manner. Every cell has the power of making a new cell like itself. This is usually accomplished by cell division, as it is called. The nucleus, which is the active part of the cell, first divides into two smaller nuclei; then the protoplasm gradually closes together in the center like an hour-glass, giving one-half of itself to each nucleus. When the division of protoplasm is complete, the cell separates in the middle, making two cells, each with its nucleus. These are called the "daughter cells," although no mother remains. The "mother cell" has been divided into the two so-called daughter cells.

When a girl is growing tall and strong the cells need to multiply very fast. If they are well nourished by an abundance of good food

FOR GIRLS AND MOTHERS

and fresh air, and are kept strong by exercise, then she becomes sturdy and remains well. But if for any reason the cells can not get the necessary food, she becomes thin, pale and weak, and fails to grow as she ought.

Each and every one of these cells has its own work to do for the life and growth of the body. Some of them prepare materials which act upon the food taken into the body, making it ready to feed the separate cells. For example, the cells in the lining membrane of the stomach manufacture gastric juice. They are kept very busy after dinner, for a large amount of gastric juice is required to digest the food. When the stomach is empty these cells have a period of rest until more food is swallowed; then they are again called to work.

Still other cells carry out of the body waste materials which are no longer needed. The cells of the kidney are of this sort. They take out of the blood a large amount of water which carries with it materials which would

HOW CELLS GROW

be poisonous if left in the body. The work of these little cells is to select these materials from the blood and to carry them away where they can not do further harm.

The muscle cells keep the muscles in good repair. Every time that we climb the stairs we use a certain amount of protoplasm which these cells contain. The cells immediately take from the blood new material to supply this waste, and at the same time they give up to the blood the worn-out and therefore useless material. So the old and worn-out cells become new and the body is repaired and kept strong and well.

Now, the important cell which we have been studying—the germ cell—is very much like the other cells of which the body is made. It is a little drop of protoplasm surrounded by a cell wall and containing a nucleus. Nevertheless, it differs very widely from the other cells of the body in the work which it has to do and in its manner of doing it.

FOR GIRLS AND MOTHERS

All the body cells are entirely occupied in sustaining the life and growth of the body itself; but the germ cell, or ovum, is the beginning of a new life. The body cells also do their work without asking help from their neighbors; but this germ cell can not do anything alone. It can not even divide as other cells do. It must have the cooperation of another cell. Furthermore, this other cell must be provided by another member of the same species, and of the opposite sex. The body of the mother provides the ovum, which is the female cell; but before this ovum can develop into a new being it must come in contact with the male cell, which has been developed within the body of the father.

Now we have reached the threshold of a great and universal law, and we must turn back again to study the life of the plant; for this will help us to understand this law, as it applies to human life.

CHAPTER XIII

HOW THE POLLEN UNITES WITH THE OVULE

We return to the plant to learn how the seeds are developed and the life of the new plant assured. In the plant we may see the growth of the new life, which can not be watched in the body of the mammal.

Let us look at the lily and see what it has to tell us. We shall find the white, beautiful, fragrant blossom growing at the end of the stem. Turn back the clear white petals and you will plainly see the swollen part of the stem at the base of the flower. This is the ovary. Within it you will find three chambers containing rows of little cells. These are the ovules or the germ cells of the flower.

Growing from the ovary is a long tube called the pistil. The swollen end of the pistil is the

FOR GIRLS AND MOTHERS

stigma. When the flower is open this stigma is covered by a sirup-like liquid.

Around the pistil are the long delicate stamens at the end of which are poised the the yellow anthers or pollen boxes. These anthers are really pods which hold the pollen dust. Now the ovule is the female germ cell and the pollen is the male cell.

You have often noticed the pollen on familiar plants. The pollen of the tiger lily leaves a brown smut upon your cheek. The pollen on the many stamens of the rose give the yellow glow to the heart of the rose. The yellow anthers make a heart of gold in the beautiful white blossom of the lily.

If you were to place the pollen under a powerful microscope you could easily see each tiny cell with its nucleus.

Now I must tell you that the ovule in the ovary of the lily will not become a seed which is capable of developing a new lily, unless yellow pollen dust is united with it. It is for this reason that the sirup-like liquid exudes

POLLEN AND OVULE

from the stigma. As the pollen dust is blown by the wind or brought by the insect, it is caught by the sticky fluid upon the stigma. The sticky substance furnishes just the food which the pollen cell finds necessary for its growth, and very shortly it begins to grow and to send down a fine tube through the pistil to reach the ovary.

When, after two or three days, the tube is ready, the nucleus, which is the essential part of the pollen or male cell, escapes into the tube and travels down to meet the ovule, or female cell.

When it reaches the bottom of the tube the end opens, the two cells come together, the ovule absorbs the nucleus of the pollen into its nucleus, and immediately the changes begin which end in the formation of a seed. Other pollen grains follow the example of the first, until all of the ovules in the ovary have received a pollen cell. This union of the two cells we call fertilization.

When the farmer plants red corn on one

FOR GIRLS AND MOTHERS

side of the road and yellow corn on the other the ripe ears of corn in both fields will be mixed, red and white. That means that the pollen from the red corn has drifted to the pistil of the white corn; or the pollen of the white corn has been blown across to the pistil of the red. Each long thread of silk that hangs from the ear of the corn is a pistil which serves to conduct the pollen to the waiting ovule. After this is done the silk shrivels away and each kernel of the corn begins to grow.

The wind carries the pollen of some plants to the stigmas of the blossoms that may be far distant. In other cases, the bee, attracted by the odor or the color of the flower, comes to it for honey. While the bee feeds from the honey, hidden at the base of the pistil, its legs and body become dusted with pollen from the anthers. It flies to another flower, still seeking honey, but it also carries the pollen, which is brushed against the pistil of the second flower.

POLLEN AND OVULE

Thus the pollen is enabled to unite with the ovule; and, as with the lily, the seed is fertilized. It immediately begins to grow and finally ripens; then it is a perfect seed, ready to produce a new plant.

Exactly as thousands of seeds are wasted where one is planted, and therefore nature must provide many seeds, so the pollen dust must be plentiful, too. Nature must provide numberless cells in order to insure the essential contact of the pollen with the ovule.

CHAPTER XIV

FERTILIZATION : OR, UNION OF THE OVUM AND THE SPERM

The pollen, or male cell, of plants is carried in the form of dust by the wind or by insects; the male cells of animals are carried in a fluid and are placed by the male near the ova.

We have learned that the eggs of the fishes, like the pollen cells, are numerous, and that they are deposited by the mother and left without further care. But the mother fish is not wholly unmindful of the needs of her young, so she finds a place in some quiet pool where she hopes they will remain undisturbed, and there she lays her spawn with its millions of eggs. She is followed by the male fish, who, knowing the eggs to belong to one of his kind, pours over them the fertilizing fluid which has been developed within his body. This fluid con-

THE OVUM AND THE SPERM

tains myriads of germ cells,—the male cells or sperms. These sperms unite with the ova which the mother has deposited and a great number of the eggs are fertilized and begin to grow.

Birds accomplish fertilization in a different manner. The male bird does not pour the fertilizing fluid over the eggs when they are in the nest, because the bird's egg then has a hard shell which the male cell could not penetrate. Therefore the body of the male bird is provided with a tube, corresponding to the tube which grows from the pollen cell. He inserts this tube into the oviduct of the female and deposits the fluid containing the life cells where it can meet the eggs as they leave the ovary, while they are still small and soft and before they are covered by the shell.

We may now turn back from the flowers, fishes and birds to the human parent. As we have said before, the ovum which has left the ovary will not develop unless it comes in con-

FOR GIRLS AND MOTHERS

tact with the male cell. From what you have learned of the seed of the plant, of the egg of the fish and of the bird, you are ready to understand that the reproduction of all higher animal life, including that of the human being, requires the union of the male and the female germ cells. You wish to know how this union is accomplished.

The male germ cell differs in appearance from the female cell. The female cell is round, about one one-hundred-twenty-fifth of an inch in diameter, and has a small nucleus inside of the protoplasm. The male cell, which is called the sperm or sperm cell, appears through the microscope like a tiny tadpole. The cell itself forms the head and body of the tadpole, while the tail, which has a constant waving motion, is **only** a propeller by means of which the sperm goes in search of the ovum.

The sperm is much smaller than the ovum. The latter contains a large amount of protoplasm surrounding the nucleus, much more

THE OVUM AND THE SPERM

than is found in the ordinary body cells. This protoplasm is sometimes called the yolk as it supplies the food for the ovum during its first few days of life. The sperm cell contains very little protoplasm, being nearly all nucleus and it therefore is much smaller than the ovum.

The sperms come from two glands in the body of the male parent, which are called the testicles. Just as the ovary produces the ova or female cells, so the testicle produces the sperms or male cells.

We have seen that the male cells of the plants and fishes are very numerous. Nature provides very few female cells in comparison with the number of male cells; so they have to be housed and protected much more carefully. In order that fertilization shall be insured, the male cells are provided in great profusion. The mammals furnish no exception to nature's law in this regard, for while the ova are produced singly in the largest animals and in the human being, the sperms are counted by the thousands

FOR GIRLS AND MOTHERS

to every ovum. The enveloping fluid, together with the sperms emitted by the testicle, is known as the semen,—(the Latin word for seed). You will understand the use of this term, for the semen contains the germ cell or seed of the male parent.

In order that the ovum may be retained within the body of the mother until the young is fully developed it is necessary that the fertilization should take place within the body of the mother. The structure of the parent animals, therefore, is adapted to this necessity. Just as the oviduct, or the fallopian tubes are prepared to conduct the ova to the uterus, so a suitable tube is provided by which the male parent can convey the semen to the ovum which is awaiting fertilization.

This muscular tube deposits the semen in the upper part of the vagina, where the sperm can readily reach the ovum. Such union of the sexes is commonly called intercourse. It is essential to the production of the young in all mammals.

THE OVUM AND THE SPERM

Nothing upon this wonderful earth is more wonderful than the delicate mechanism of the living creature. Every tiniest cell in the living body does its part in the continuance of life, yet the thing which commands our deepest reverence is the marvelous provision for the precious new life. The growth of the young child is in obedience to a great and universal law. When the sperm and the ovum merge, the one into the other, they together form a new cell, part father and part mother. We shall expect then that the new life will combine the characteristics of both parents. With this fusion the new life is begun.

This, then, is the miracle of life;—the union of two cells from different sources, carrying with them the peculiarities of the stock of which they are a part. Immediately upon this union a new life begins, a life which may be full of happiness for itself and blessings for others, or full of misery and wretchedness.

When the plant makes ready for the fertilization of its ova it is in the full tide of its

FOR GIRLS AND MOTHERS

strength and beauty. Its leaves are of the freshest, its flowers of the brightest, and its whole life speaks its strength and fitness for the endowment of a new life.

Just when the flower is in its prime the pollen is ripe, the stigma is receptive, and the pollen finds its way to the ova, making a strong and healthy seed ready to begin the new life which is to be.

When the young man and woman take upon themselves the responsibility of bringing new life into the world, they come to the marriage altar,—the bride in her white dress and veil, the emblem of purity, modesty and devotion to her new life as wife and mother; the bridegroom in the strength of his young manhood, with a body as pure and a purpose as devoted as his bride's. Thus, and thus only, can the new lives which they may create be endowed with their true birthright.

CHAPTER XV

CONCEPTION AND MOTHERHOOD

As we have learned, the ovum is carried from the ovary into the fallopian tube. Here it is borne along by the cilia, or hair-like projections, toward the uterus.

On its way through the fallopian tube the ovum is met by the sperms which have found their way up through the uterus and into the fallopian tube. As they meet the ovum, one finds its way through a tiny opening in the wall of the ovum and reaches the nucleus. The two cells unite, and become one, much as two drops of water, when they come in contact, merge into each other and become one drop. Thus the two cells, which in their origin come from two different living beings, unite to form

FOR GIRLS AND MOTHERS

the new cell, which will result in a completely new and different human being.

Now we say that conception has taken place : the mother is said to be pregnant. By this we mean that the ovum is fertilized. From this moment she carries a new life within her body and thus begins the deepest experience of her own life. For what experience can be more sacred, or more marvelous, than that of the mother who understands that a new human life has begun within her, and that in a short time she will give to the world a human soul? And this experience is shared by the father, whose life goes on in the life of his child.

You may know that some insects give their lives for their young. They lay their eggs in some suitable place and then die, because the great work of their life has been accomplished. They have certainly given their life for their children.

The human mother gives her life for her

MOTHERHOOD

child in a different way. From this moment she must live for her child; she must think of the needs of her child before her own and be ready at all times to sacrifice herself in its care; or, rather, she must be strong and wise for its sake, knowing that all which makes her strong will add strength to her child.

How I wish, my dear girls, that I could give you a glimpse of the joys of motherhood as I have seen them again and again. Have you not felt the thrill of a baby's arms around your neck? Have you never cuddled a baby in your arms, feeling as though you could never give it up? That was the dawning of motherhood in your nature.

Only yesterday there came to me a letter from a young mother who has two babies,—one very young, and the other not yet able to walk. She writes: "Every minute is full to the brim. There is always something to do for one or the other baby—but I never was so happy in my life." Motherhood brings with

FOR GIRLS AND MOTHERS

it cares and responsibilities, but it also brings the greatest of earthly joys.

I trust that the girls who read this book are looking not only for the pleasures of life, but also for usefulness to others—their friends, their country and their race. If you truly desire to be of service, if you wish to devote your life to some high calling, there is nothing greater nor finer that you can do for the world than to bestow upon it first a good woman of fine character in yourself, and then, if it may be your privilege, children who through your teaching shall become strong and true men and women.

The sacrifice of the mother may seem to youth like a hardship; but mothers rarely count it so. The true mother finds such joy in everything that she can do for her child that this devotion becomes the deepest pleasure of her life. So artists have loved to paint the mother and the child, and poets have sung the sacredness of motherhood.



A MOTHER'S LOVE

Her, by her smile, how soon the stranger
knows;

How soon by his the glad discovery shows,
As to her lips she lifts the lovely boy,
What answering looks of sympathy and joy!
He walks, he speaks. In many a broken word,
His wants, his wishes, and his griefs are
heard.

And ever, ever to her lap he flies,
When rosy sleep comes on with sweet surprise.
Locked in her arms, his arms across her flung
(That name most dear for ever on his tongue),
As with soft accents round her neck he clings,
And, cheek to cheek, her lulling song she sings;
How blest to feel the beatings of his heart,
Breathe his sweet breath, and bliss for bliss
impart;

Watch o'er his slumbers like the brooding
dove,

And, if she can, exhaust a mother's love!

—*Samuel Rogers*



CHAPTER XVI

THE DEVELOPMENT OF THE HUMAN EMBRYO

When the ovum has been fertilized its development begins at once, even while it is on its way down the fallopian tube. At the same time changes must take place in the uterus to make ready for it. The tiny cell must grow until the organism which we call the child contains many billions of cells. Almost immediately, then, the fertilized ovum begins the making of these many cells. It divides itself in two, just as the body cells divide; the one cell becomes two complete cells, each one having its nucleus. Each of these cells divides again, making four, then eight, then sixteen, and so on. The process continues very rapidly until there is a multitude of these related cells.

Now a drop of liquid forms in the midst of

THE HUMAN EMBRYO

this mass of cells. This liquid gradually increases, pushing the cells aside until they are closely packed together around the circumference, forming the wall of a little sphere which lies in close contact with the cell wall. The liquid remains in the center. This process requires only a few days. Soon a little thickened spot appears on the inside of this sphere, projecting into the liquid. This gradually develops, as each day brings some new and mysterious change, until, at the end of the first month, the head and body of the little embryo, as we call the baby at this stage, can be clearly distinguished. The embryo is perhaps as large as a small bean, while the whole sphere, or ovum, is about the size of a pigeon's egg.

By the end of the second month the embryo has grown to be one and one-half inches long and the whole ovum is about the size of a hen's egg. Now the growth continues to be more and more rapid so long as the child remains in the uterus.

FOR GIRLS AND MOTHERS

An ovum escapes from the ovary once a month, about the time of the menstrual period, but it is quite possible under some conditions of special excitement that the ovum may pass off at other times. It is not always certain, therefore, that the sperm will meet the ovum, for there may be no ovum in the fallopian tube, where the union usually takes place. On the other hand, it is never possible to tell whether an ovum is present in the tube or not, and whether the sperm will be able to find it there.

Thus it happens that many sperms are lost in the reproductive organs, and also that many ova pass through the tube without meeting the sperm. Under these conditions the ova or the sperms are either washed away in the slight amount of mucus which is always found in the uterus, or else they are absorbed. As we have said several times before, nature makes very abundant provision for the reproduction of the race, but many seeds and eggs, pollen and sperms are doomed to be lost.

THE HUMAN EMBRYO

The ovum passing down the fallopian tube every month is very small, and no sensations accompany it. When conception occurs, the ovum passes through the tube in the usual manner, with no new sensations. The mother has no means of knowing just when conception takes place. She is probably not aware of it until the end of the fourth week. The first intimation comes with the omission of the menstrual period, for during the period of pregnancy the menstrual flow ceases. This may soon be followed by unusual sensations. The appetite may become capricious; the mother wishes to eat more than usual, or very much desires certain foods. There may be some nausea or a feeling of heaviness in the pelvic region; but these discomforts are not always present, and many mothers feel unusually well and happy during the entire period of their pregnancy.

You know that the mother hen broods her eggs for three weeks, which is the length of

FOR GIRLS AND MOTHERS

time required for the young chicken to develop from the germ cell. This seems a long time for the hen to confine herself so closely in order to keep the eggs warm; but it is a very short time when you think of all the wonderful things that happen to the egg in the three weeks.

The development of the kitten from the ovum of the cat requires about nine weeks. The human baby, however, is much larger and is more highly organized. The time required for its development is nine months. The little form is quite perfect at the end of four and one-half months, but the child is not yet ready to live apart from its mother. If it were born at this time it could not live; the lungs are not ready to breathe nor the heart able to beat, apart from the mother.

Beyond this time we speak of the fetus instead of the embryo. During the last four and one-half months the fetus continues to grow in size and strength and all its parts become fully developed. At the end of the nine months the

THE HUMAN EMBRYO

baby weighs from six to nine pounds; its skin is soft and smooth; it should be plump and round and in every way a perfectly formed and attractive child.

The question is frequently asked, when does the life of the new baby begin? The question is a very important one, and this is the answer. From the moment when the sperm enters the ovum—from the moment that fertilization is thus accomplished—life begins. The mother does not recognize the presence of this life until she feels the movement of the child within her body. This occurs at about four and one-half months after fertilization, or when the fetus is four and one-half months old. This has been incorrectly called the period of quickening, or the time when life begins. This phrase gives undue importance to the first feelings of the mother, for life has been present for eighteen weeks, and motion has been going on for seven or eight weeks. It is only when the motion becomes so strong that the mother perceives it, that she has new consciousness of the

FOR GIRLS AND MOTHERS

life of her child ; but this life has been present from the beginning.

The period of pregnancy is a time of much anticipation. The mother who knows that she is carrying her child must feel that all the days are sacred and that all that she does is of moment to others. The child which she is to bear will be a gift to the world, having power and strength, quality and abilities unlike any other that the world has known,—and yet in many ways he will be like those of his family who have preceded him. What he is to be will largely depend upon the mother,—her health, her strength, her power, her skill, her knowledge and her understanding.

No wonder, then, that the mother broods much upon the days that are to be, and the life which her child is to lead. Happy the mother whose friends share with her all her hopes, and who knows that nothing has been left undone to make perfect the life which she is guarding!

CHAPTER XVII

PROVISION FOR THE GROWTH OF THE HUMAN INFANT

You will remember observing the ovules of the bean, the pea or the lily. Each one is attached to the wall of the ovary, and through this attachment it obtains the nutriment which is necessary to its growth. The part of the ovary to which the ovules are attached is called the placenta. You will recall this thickened part of the bean pod to which the beans were attached, as you opened the pod. We shall need to use this name as we describe the development of the human ovum.

The ovule of the plant develops into the seed within the ovary. When the seed is ripe, the ovary or pod breaks open, and the seed is spilled to the ground, where it develops. But the human ovum, after leaving the ovary, must

FOR GIRLS AND MOTHERS

be detained in the uterus until it has grown able to begin its independent life. Therefore, it must be attached to the wall of the uterus in some way.

As the fertilized ovum passes out of the tube into the uterus, it is caught and held in a fold of the membrane which lines the uterus. It is wrapped around by this membrane, and attaches itself to the wall of the uterus by sending out tiny blood vessels, which penetrate the substance of the uterine wall. These blood vessels increase in size and number, becoming a large mass or network of arteries and veins, in close contact with the blood vessels of the mother. This mass is called the placenta. By this means the embryo is attached to the wall of the uterus, and through it the growing child is fed.

As the embryo grows, these blood vessels increase more and more in size and number, until at the time of birth the placenta is a large fleshy mass, which is still attached to the uterus.

THE HUMAN INFANT

The human placenta covers about a third part of the uterine wall. It is made up of the tiny vessels—arteries and veins—which, as has been said, lie in close contact with the mother's arteries and veins, so that the nourishment from the mother's arteries can pass through into the child, and the waste and useless materials from the cells of the embryo can be returned through the veins of the mother. Moreover, the oxygen, by which the blood of the embryo is purified, is brought through the mother's arteries to the child, and the impurities which must be sent away, pass from the embryo to the veins of the mother in the same way.

The many small arteries and veins of the placenta unite to make a large vein and two large arteries, which are twisted together and covered by a membrane, forming a cord which unites the body of the child with the body of the mother. This cord enters the child's body at the navel, or umbilicus, which is the scientific

FOR GIRLS AND MOTHERS

name given to the navel. You will understand this arrangement if you think of the picture of a tree. The cord is like the trunk of a tree which branches as it enters the placenta, and these branches divide again and again, just as the branches of a tree separate into twigs; thus the multitude of small blood vessels is formed which make up the mass of the placenta.

You will readily understand that this rapidly growing baby must require that the containing uterus also should grow very much in these nine months. At the time when the ovum was fertilized the uterus was a small organ, only three and one-half inches in length, and lying wholly within the pelvis. But as the embryo grows in size and the baby develops, the uterus also grows larger, until the pelvis can hold it no longer, and it rises up into the abdomen. There its growth continues until, at the end of the nine months, when the child's development is complete, the uterus, with its contents, fills the whole abdomen, crowding the intestines backward and toward the sides.

THE HUMAN INFANT

At this time the walls of the uterus are one-half inch in thickness. They are made of strong muscular fibers, for it is by the strength of this muscle that the baby is to be expelled from the uterus when the right time comes.

There has been a marvelous change in the tiny ovum, which was in the beginning barely one one-hundred-twenty-fifth of an inch in diameter, visible only through the microscope, and composed merely of the cell wall, the protoplasm and the nucleus. The ovum has grown as rapidly as the uterus and now completely fills it. At the end of pregnancy the wall of the ovum lines the inner surface of the uterus. The cell wall has become a threefold membrane, which still encloses the contents of the ovum.

Over about one-third of the membrane is spread this placenta, with its outer surface attached to the uterus and the inner surface covered by the membranes. Inside of the membrane, or wall of the ovum, we now find in the place of the small bit of protoplasm and

FOR GIRLS AND MOTHERS

the minute nucleus, a child, weighing from six to nine pounds. About it is a watery fluid, perhaps a pint or more in quantity. The child is attached to the placenta by the cord, which is about eighteen inches long. This cord lies folded in the water or possibly a part of it is wound about some part of the child.

The time required for the development of the ovum has been nine months. This period, during which the mother carries her child, is called the period of gestation. When this period has been completed all is ready for the birth of the child.

CHAPTER XVIII

THE BIRTH OF THE CHILD

And now for nine months the child has been growing within the uterus of the mother. It usually lies with its legs drawn up and crossed Turk fashion; its arms folded over its breast and its head bent forward. In this position it takes up the least possible room. It has been surrounded by a liquid, which has protected it from injury and has allowed it sufficient freedom of motion.

The child has grown so rapidly that although the uterus also has developed to meet its needs, it has never had more room than was absolutely necessary. It has, therefore, lain doubled up in what seems to you a strange position. The presence of water in the uterus has enabled the growing body of the child to

FOR GIRLS AND MOTHERS

turn over or upside down and to move its arms and legs a little; but it has never been able to straighten out the legs. When the growth is completed and the time has come for the child to be born, the fetus arranges itself with its head downward.

The mother has been making ready all these months for the birth of her child. She has made every effort to keep herself strong and well, in order that her child may be well and strong likewise. She has made ready dainty clothing for the little one and has prepared the exquisite baby basket, providing everything which can be needed by her child after its coming.

During all these days of waiting and of preparation her thoughts have been busy, too. The love of the mother does not wait until the child is born. She has thought and dreamed of its coming and has lavished her affection upon it from the beginning.

She has had to be very patient for many

THE BIRTH OF THE CHILD

days, for she has begun to find her burden very heavy, and she longs to take her child in her arms. She knows that the coming of the child means a trial of her strength and endurance, but she looks forward to it with courage and joy, knowing how great happiness it is to bring to her.

Though she may have been expecting the birth for some days, she can not tell just the day or the hour when the child is to be born. At last a day comes when an unusual pain occurs. This is a sharp hard pain in the abdomen which quickly subsides. In a few moments the pain is repeated; then follows another and another. Now she knows that the time has come.

You already know that the uterus is at this time a strong muscular organ. The mother's pain is caused by the contraction of the muscles of the uterus, now attempting to expel the child which has been so long resting within it. The muscles contract exactly as do the

FOR GIRLS AND MOTHERS

muscles of a boy's arm when he clenches his fist and stoutly bends his elbow to feel the strength of his muscle.

As the uterine muscle contracts, it gives the baby a gentle push. The contraction lasts for a minute, causing the pain of which we have spoken; then the muscle relaxes and the pain ceases. In a few minutes all the muscles contract again, giving another push. This contraction lasts about the same length of time; then the uterus rests again. This contraction and relaxation are repeated in turn many times, every contraction urging the child a little farther on its journey. Each contraction also opens gradually the mouth of the uterus, until it is finally opened sufficiently to permit the head of the child to pass through. Now the surrounding membranes give way, the water which has surrounded the child escapes and the baby's head is pushed into the vagina. Then the vaginal opening dilates gradually, the

THE BIRTH OF THE CHILD

head emerges, the body follows rapidly, and the child is born.

The new born child is now completely without the body of the mother, but it is still attached to the uterus by the cord, through which it has been nourished. Now the physician who is caring for the mother severs the cord, after first having tied a string tightly about it, and the child begins its separate new life.

Up to this time the baby has never breathed. Its blood has been purified by coming in contact with the mother's blood; its nourishment has also come through the blood of the mother. It has never cried; but as soon as it reaches the cool air of the outer world, it makes the only expression of joy or sorrow that it has power to make; it cries out at once. This cry causes the child to take long deep breaths. So the unused lungs are inflated, the air enters and is expelled and the blood begins to circulate through new channels.

FOR GIRLS AND MOTHERS

The baby is quickly wrapped in a warm blanket and is laid in some warm comfortable place to rest and sleep. The warmth and comfort hush its cries and it waits quietly the time for its first bath.

Now that the cord is no longer of any service and the placenta has completed its work, it is detached from the uterus, and expelled, just as the child has been. Nature casts away, at the same time, the membrane which had surrounded the child. These together are ordinarily called the afterbirth.

The mother has now completed this wonderful gift to her child, and, through her child, to the world which was waiting for this new life. She has accomplished this with effort and suffering. During the birth of the child it has been necessary for her to use all her strength and she has endured much pain. This has been a costly experience and she must have the needed rest. Moreover, a profuse flow of blood, similar to the menstrual flow, continues

THE BIRTH OF THE CHILD.

several days. This period should be given to rest and quiet, so that she may win back her wonted strength. The young mother has yet much more to do for the little one which she has borne. Her child must be fed and she must devote herself with her utmost energy to its continued care through the long period of infancy.

And then the Babe:

A tiny perfect sea-shell on the shore
By the waves gently laid (the awful waves!)—
By trembling hands received—a folded message—

A babe yet slumbering, with a ripple on its face
Remindful of the ocean.

And two twined forms that overbend it, smiling,

And wonder to what land Love must have journeyed,

Who brought this back—this word of sweetest meaning;

Two lives made one and visible as one.

And herein all Creation.

—*Edward Carpenter*

CHAPTER XIX

HOW THE CHILD IS FED AFTER BIRTH

The human child comes into the world in a more helpless condition than any other animal. It can not walk nor even stand; it has no use of its hands. Its eyes are not ready to endure the light of the outer world, and during the first few weeks it probably sees nothing.

It needs the most continuous care and cuddling. The child that misses the tender love of the great mother heart loses something quite essential to its well-being. When the mother has brought her child into the world she has only begun her task. She must now gather it in her arms and care for it night and day. She must anticipate its wants and keep it warmed and fed.

Even while the mother is still resting in bed

HOW THE CHILD IS FED

she must begin to feed her little one. The child is fed from the mother's breast, for within the breasts are organs known as mammary glands, whose work it is to provide milk to feed the child. The growth of the child requires the making of many new cells and every cell must be properly nourished. The only food which perfectly provides this nourishment is the mother's milk secreted by the mammary glands. No other milk or food can always be relied upon to do this work.

The mammary glands, as has been said, are found within the breasts. They are imbedded in fat and covered with skin, to protect them from harm and to assist in keeping the baby's food warm. The gland is shaped much like a bunch of grapes, if each grape were a blackberry. The milk is formed in the little sacs of the blackberry. The necessary materials which are provided in the blood of the mother are here transformed into the mother's milk by the

FOR GIRLS AND MOTHERS

thousands of specialized body cells which line these little sacs, whose definite work it is to produce milk. The milk flows out into the ducts which answer to the stems of the grapes. These ducts converge toward the nipple, opening by a number of very small openings upon the surface of the nipple—so small, indeed, as to be visible only with the help of a magnifying-glass. From these openings the milk flows readily by suction when the child is put to the breast.

The first few days after the baby comes it needs but little nourishment, and therefore only a little sweet water comes from the mammary gland. But upon the third day the milk comes freely and from that time the baby has abundant nourishment.

After a few days of rest the mother is able to resume her ordinary life habits; but for many months, perhaps a year, she must continue to feed her infant.

During this time, while the mammary gland

HOW THE CHILD IS FED

is so active, the other organs should have complete rest. Therefore, after the flow which comes at the baby's birth, the menstrual function is ordinarily not established again until after the nursing is ended.

This feeding and care of the baby imposes upon the mother very constant attention. It is most important, then, that the mother should take great pains to obtain all the right conditions for the feeding of her child. This will mean, among other things, staying within reach of the baby, so that it may be fed whenever it is necessary. In these busy days, when there is so much to attract the mother away from her home, this may be considered irksome. But happily the mother love which comes with the child is usually strong enough to induce the mother to take her greatest pleasure in the care of her baby. She is therefore willing to make sacrifices for its best good. And she may know that this care given to her child may be the means even by which his life

FOR GIRLS AND MOTHERS

is continued, and assuredly the means by which his health is preserved.

A mother's life is necessarily one of sacrifice and devotion to others. To the girl who has taught herself thoughtfulness for other people and pleasure in doing deeds of kindness, rather than in seeking her own pleasure, the care of her child will be her greatest joy. She is more than repaid as, day by day, she watches the growth and enjoys the development of her baby, with its winsome ways.

The father of three beautiful girls once said to me, "Children pay as they go." The joy attending the care of children is far greater than any trifling pleasure for which many a thoughtless girl sacrifices this larger interest. A womanly woman knows in her heart that the care of her child is a joy and not a burden. As the child grows the mother grows, too. The sweetest and strongest qualities which have come to the human race have come through the devotion of the mother to her child.

CHAPTER XX

MENSTRUATION

The body of the new born child is like the body of the adult father or mother in having the same organs, but all these organs are more or less undeveloped. The lungs do not begin their work until the child's first breath; when breathing begins there is also an important change in the circulation of the blood. The liver is larger in proportion to the size of the body than it will be in after life; the bones are flexible, being composed largely of cartilage. They must be supplied with mineral matter, in order to become hard and firm. The teeth are still hidden far down in the gums and can not be seen. The reproductive organs are fully formed, but are very small. The ovaries,

FOR GIRLS AND MOTHERS

however, already contain the immature germ cells.

Twenty years, more or less, will be required before the infant child will have completely developed into the full grown man or woman. The reproductive organs increase in size gradually as the child grows, but between the ages of twelve and fourteen years a greater change takes place. This period is called the period of puberty. At this time the reproductive organs develop very rapidly and begin to assume the form and size which they have in adult life. Up to this time the germ cells in the ovary have made little, if any, change; but now a few of them begin to enlarge, and as they grow they come nearer to the surface of the ovary. At last, one cell, preceding the others, becomes so large that it breaks through the outer surface of the ovary and finds its way into the fallopian tube.

The young girl is entirely unconscious of these inner variations, but she may have ob-

MENSTRUATION

served external changes at this period. She has grown much taller, her features are larger, her form has been modified, the breasts are developed. Her friends will have noted a decided change in her desires and interests. She has been running and romping and playing with dolls; now she lays aside her dolls and becomes interested in the pursuits of those about her. She is more quiet and thoughtful,—more mature in her judgment.

Before this time she may have been told by her mother that still another physical change is near. A flow of blood from the uterus appears at this period, which indicates that the ovum has been discharged from the ovary. Now the menstrual life has begun. Her mother will also have told her that this appearance will now be periodical, returning every month. For this reason the time of its occurrence is called the menstrual period, from the Latin word *mensis*, meaning month.

The flow of blood at the time of the first

FOR GIRLS AND MOTHERS

menstruation may be slight, and it may be several months before it recurs. This delay is much to be desired, for it allows the system to adapt itself gradually to the new conditions. When, however, the habit is regularly established, menstruation should occur every twenty-eight days, measuring from the beginning of one period to the beginning of the next.

After this function has been regularly established, there may be a slight divergence from the normal period within the limits of perfect health. The menstrual flow may be delayed for a day or two past the regular time or it may come a few days in advance; any great divergence, long continued, indicates that the health is impaired. The exception to this is the period of pregnancy, when, as has been said, the flow ceases.

The amount of blood which is expelled at the menstrual period varies widely within natural limits. All mammals have something

MENSTRUATION.

akin to menstruation and some of them emit a slightly blood-stained fluid. Human beings in a savage state expel only a very little blood, —the discharge lasting but a day or two. With the increase of civilization and the many unnatural conditions associated with modern life the amount of the menstrual discharge is increased.

The length of time during which the flow should continue is about five days. It may, however, be seven or eight days without being considered excessive, or in some cases, two or three days may be sufficient.

The menstrual fluid comes directly from the uterus, where it oozes from the membrane much as the perspiration comes from the skin. It leaves the uterus at once, passing through the mouth of the uterus and out by the vagina. When the flow has ceased the passages are thoroughly cleansed so that no trace of blood is left, by the natural mucus which constantly bathes the parts. As this menstrual fluid

FOR GIRLS AND MOTHERS

comes directly from the blood vessels, it is neither poisonous nor impure, as is sometimes ignorantly supposed, but is like the blood circulating through the body.

CHAPTER XXI

WHY THE GIRL SHOULD KEEP WELL

It is not an easy matter to arouse in young people sufficient interest in the care of their health. They have not yet had enough experience to understand how heavy a handicap ill health may be, nor how it may limit both happiness and usefulness. Youth lives in the present and not in the future. The warnings of older people are likely to be turned lightly aside. When one is strong and well, neither health nor disease is often in one's thoughts.

But all which has been said about the mother and her child must lead us to realize that the health of the girl concerns others besides herself. If she maintains herself in health and strength her child is well endowed. Anything

FOR GIRLS AND MOTHERS

which impairs the health of the mother may result in weakness or suffering to the child. No girl should, therefore, lightly consider anything which may cause loss of health and strength. She must be wise and well and strong, not for her own sake alone, but for the sake of all who may depend upon her.

If we observe the good mothers who are round about us we shall be sure that the preparation for motherhood must include the development of a strong body, an intelligent mind, a loving heart, and the will to serve. Every good mother teaches us that the care of others involves love, service and sacrifice. Every earnest girl will rejoice in the consciousness that all which enters into her life, adding strength, or wisdom, or insight, may result in greater good for her child, when motherhood comes to her.

There is no more attractive picture than that of the mother who has spent her life in the service of her family, and who is repaid by

KEEPING WELL

the devotion of one and all. The respect, the reverence, the love, the friendship which son and daughter feel for the mother whose love has blessed their days, is a blessing not to be measured in words nor to be turned lightly aside. Such motherhood is not a matter of chance; such regard is not given for nothing. Through all the days of girlhood and young womanhood the mother had been preparing for her great task. The girl of to-day is not too young, nor should she be too thoughtless, to remember that her welfare concerns others yet unborn.

All girls, then, should secure and preserve their health. Good wholesome food, abundant exercise and play out-of-doors, simple comfortable clothing, wholesome companionship and regular tasks, will keep the body strong and active. Everything which sustains the general health will help to gain a similar condition in the organs of reproduction. They will need no special attention or care beyond

FOR GIRLS AND MOTHERS

that which should be bestowed on all parts of the body.

Certain suggestions may help the girl who has not yet discussed these matters with her mother, or who has not thought clearly concerning them. It is for the sake of these girls that the next chapters are written. For the girl who has not been taught, both rules and warnings must be written.

CHAPTER XXII

HYGIENE OF THE MENSTRUAL PERIOD

The menstrual flow is a natural function of the body, just as much so as eating or drinking. If the girl is well and strong this period should cause her no trouble. It happens, however, that many young girls are neither well nor strong. Their habits of life are not always regular, or wise, and they may be living under conditions which are not normal. If this is the case, it may happen that they are more or less disturbed at the time of the menstrual period. One individual may feel unusually nervous or irritable or depressed at this time; another complains of some feeling of discomfort in the pelvic region, a little back-ache or some heaviness, while others may at times suffer a discomfort which amounts even

FOR GIRLS AND MOTHERS

to intense pain, accompanied by nausea and vomiting.

This may not in the least mean that there is any disease which needs to be cured. The difficulty may be caused simply by a condition of nervous spasm or neuralgia, which is dependent upon the general health of the individual. It sometimes happens even that attracting attention to something else, getting rid of tension or anxiety, relaxing and resting, or lying down for a while well covered and warmed, to induce perspiration, will relieve the condition of tension, discomfort or pain. If the difficulty does not yield to such a simple means it may be entirely relieved by a change of climate or by change of occupation or surroundings. It frequently happens that resting carefully at this period for some months in succession will entirely cure the trouble.

If the individual is entirely normal and experiences no pain at this period moderate exercise is not in the least objectionable. One may

THE MENSTRUAL PERIOD

continue the daily round of school or task and keep regular engagements without any harmful result; but extreme exercise, such as dancing or gymnastics, unusually long walks, or late parties attended with excitement, should be omitted at the time of the menstrual period. One should also be careful not to get wet or be chilled. Ordinary local bathing should be continued, for cleanliness is even more necessary at this time. The feet and other parts of the body may be bathed as usual and even a full sponge bath may be taken, using water at a moderate temperature; but sea bathing, or even tub bathing, should be omitted until the flow has ceased.

It occasionally happens that annoying pimples appear on the face or between the shoulder blades at this period. This has been puzzling and disagreeable to many young people who were ignorant of the cause. It may accompany the natural congestion of the organs at the time of the menstrual period but it does

FOR GIRLS AND MOTHERS

not necessarily indicate any disease. The pimples usually disappear naturally as the girl grows older. More rest and quiet during the first two days of the menstrual period will aid very much in preventing this annoying appearance. If the pimples are abundant and continue from month to month it is probable that they are associated with some irregularity in other organs or functions of the body.

Many have questioned the effect of the school upon the menstrual period. It has sometimes been thought that the nervous condition which often accompanies earnest study is a source of strain and reacts unfavorably upon the health. But it is undoubtedly true that a girl may be as reasonable and normal in her study as is her brother. If she plays and exercises in alternation with her work and study there is no reason why she should not continue her school without reference to the menstrual function.

The problem of the girl is not that she is

THE MENSTRUAL PERIOD

unfitted for intellectual labor but that she often adds music, dancing, social life and many home demands to the requirement of school. She therefore becomes overanxious, over-tense, and overworried, and in this abnormal condition breaks down. The first indication of her failure in strength and health is likely to appear at the menstrual period. The girl who is in normal health may readily attend to all her duties of life, both at school and at home, through all the days of this special period.

The omission of the menstrual period for one or more months may follow illness or even overwork, in the early years. Such omission is sometimes nature's method of saving the strength of the girl, and she may improve in general health during this period. A common notion that this temporary cessation of the menses means that the girl is "going into consumption" is wholly without foundation in truth. The idea probably

FOR GIRLS AND MOTHERS

originated in the fact that menstruation ceases when tuberculosis is well developed, for the reason given above, that nature is attempting to save the strength of the patient. It is doubtless wise to consult a physician if the periods are too long omitted.

CHAPTER XXIII

CONCERNING EXERCISE

The human body requires exercise, not only for growth in the early years, but in order to maintain health. It is natural and normal for children to be active constantly, alternating between play and sleep. We often hear a mother say of her child, "He is never still a minute." This is as it should be. For the child to sit still is difficult because it is unnatural.

No organ of the body performs its work well if the body is inactive. One who stays long in bed, perhaps in order to mend a broken bone, becomes weak and stiff simply from inaction. Every part of the body responds to exercise and is strengthened by reasonable activity.

FOR GIRLS AND MOTHERS

The child secures this activity through his play. The youth still loves play and it is essential to his best development. What is true of the boy is equally true of the girl, although this truth is not so clearly recognized. Gradually the book or the music lesson or the sewing is substituted for the game of basketball or tennis, or even tag and "Blind Man's Buff." When work or study prevents needed exercise health begins to suffer.

In adult life sufficient exercise often comes through the occupations. The farmer or the postman never lacks for exercise; indeed, they often need more physical rest than they can easily obtain. However, the man who is in the office all day and the woman who sits and sews, both need so to order their lives that they can take the amount of exercise necessary to keep the body in good health.

In youth exercise should neither be all work nor all play; both are necessary for the normal upkeep of the body. The boy on the farm, or

CONCERNING EXERCISE

the girl at housekeeping or in the garden, gets very useful exercise, as in both occupations all the muscles are used. It is a pity that this normal and natural means of taking exercise is likely to be left out of the present-day experience.

Do not feel it a hardship if it is your lot to take part in the work of the family. This is a great good fortune. The ordinary care of the home calls for knowledge, ability and skill; it demands, also, varied exercise. We must be keen, intelligent, alert and vigorous to do well the many things that the home needs to have done. If you have to make beds, to wash dishes, to sweep a floor, to prepare a dinner, do it with joy. Emerson reminds us that the Sandwich Islander believed that the strength of his slain enemy passed into himself. In the same way you may feel that new vigor, strength and power come to you through every task that you perform well. Say to yourself, "I am glad that I know how to wash dishes,

FOR GIRLS AND MOTHERS

to sweep a room, to bake bread. I will do my work happily and I will do it well."

Out of such service comes the finest strength and vigor. There is no tonic like happy and kindly work which results in good for others.

If the school work requires so much time that we are in danger of leaving out the exercise, it should be planned for and made a part of every day's program. A walk to and from school instead of taking the car gives good exercise for the lower limbs. But the young person who sits at the desk several hours a day needs activity for the upper limbs as well as the lower; and, therefore, making of beds or sweeping for a short time each day makes a material addition to the health of the body. But no one should depend wholly upon work or enforced exercise. Play or fun gives an added zest. As in eating, the appetite aids digestion, so the exercise which brings with it enjoyment is more desirable than that which

CONCERNING EXERCISE

is taken as a duty. Open-air games are worth while; they tend to secure good health.

Many mothers question the advisability of athletics for their young daughters, fearing that the strenuous exercise may injure the reproductive organs. The best authorities, however, think otherwise. Anything that will build up the general health, keep the muscles strong, improve the circulation, strengthen the poise of the body, is good training.

Tennis, golf, basketball, rowing, swimming, dancing, skating, walking, are all of great advantage, provided that this exercise is taken with the body free, with every motion natural and unhampered by tight clothing. The conventional tennis shoes, golf shoes and loose gymnasium costume show that it is generally conceded that the loose dress and the free foot are necessary in severe exercise. Tight boots with high heels prevent the free motion of the foot, spoil the proper poise of the body, thus

FOR GIRLS AND MOTHERS

straining the muscles to keep the balance continually, while a closely fitting corset, with tight stocking supporters, so restricts the motion of the body that most of these exercises are harmful rather than beneficial with the body thus impeded.

Dancing is an excellent exercise, bringing into use many of the muscles of the body, while it also gives grace and ease of movement. But taken as it frequently is, in overheated and badly ventilated rooms, under great excitement, with late hours, and in evening dress, much of the good is lost; under these circumstances it should be indulged in but seldom.

Another advantage of dancing is free and wholesome companionship. We are glad to welcome the return of the simple and wholesome country dances, in which old and young shared alike. In most countries, dancing out in the open, as at fairs and fetes, is much more common than the evening dance as we know it. This free merry exercise, accompanied by

CONCERNING EXERCISE

music and friendly goodfellowship, is wholesome in a high degree.

Matched games of basketball or tennis between different teams are not wholly desirable, as the practise is likely to involve excessive exercise. One works too hard for the sake of winning the game, and fails to stop when she has gone far enough. The excitement of the game, with its severe test, is likely to produce over-fatigue.

Exercise should never cause more fatigue than can be overcome completely by a good night's rest. One should always wake in the morning feeling bright and ready for the day.

Young women peasants in many foreign countries are in the habit of working in the field with the men; and while many of them grow prematurely old, from an excess of exercise, in youth they are usually splendid specimens of physical life, much stronger and freer from little ailments than are our American girls. If a girl is in good health there is no

FOR GIRLS AND MOTHERS

reason why she should not endure a large amount of activity. It is excitement and nervous tension that destroy the health, far more than overtaxing the muscles by exercise.

A well-fed, well-poised, strong body creates the best environment for the reproductive organs.

The poise of the body is almost as essential to the health as is exercise. The girl who lets the chin and abdomen fall forward and the shoulders droop, does not carry herself well. Proper poise and graceful carriage have as much to do with a good appearance as a pretty face; and therefore, every girl, for her own attractiveness, should endeavor to stand and to walk properly. Not only is the wrong position unattractive, but it interferes with the natural function of every organ of the body. One can not breathe so well; digest so well; nor can the heart beat so well; and therefore the health is impaired.

Young people are often told to put back their

CONCERNING EXERCISE

shoulders, or to stand up straight; but neither of these directions will accomplish what is desired. A better direction is to make yourself as tall as possible, or put "the neck back into the collar." Either one of these directions, obeyed, will bring the whole body into the proper line and give to the body its most graceful attitude.

All these suggestions may seem minute, trivial or insignificant; you may think that you knew this before and that it is not related to the subject of this book;—but in thinking so you are mistaken. For, as we have said before, anything which makes the young girl stronger, abler, wiser, in the end bears fruit in the life of her child.

CHAPTER XXIV

CONCERNING CLEANLINESS

Another essential condition of health is cleanliness. We are taught to desire outward cleanliness because it is attractive and many of us do not realize that it is likewise healthful.

It is probable, however, that most of us are far from understanding what real cleanliness is. Let us see if we have right ideas concerning it.

We are quick to wash away from the hands the stain of ink, the smutch of soot, or the splash of mud. This apparent dirt is unpleasant to all of us, yet there is nothing harmful in the ink, and the soot, in its way, is perfectly clean.

On the contrary, the microscope might show

CONCERNING CLEANLINESS

you that upon hands, seemingly clean, are bacteria that are capable of spreading disease. These bacteria are living organisms, too small to be seen by the eye, which are attendant everywhere. They are commonly known as "germs." They are really minute, microscopic, living bodies, capable of reproducing themselves very rapidly. When they have found a suitable place for growth they develop in large numbers. The atmosphere is full of them; everything we may touch, door-knobs, car seats, money, or what-not, may be a comfortable resting-place for bacteria.

Some persons imagine that all these bacteria are harmful; happily this is not the case. Many of them are helpful. They assist us in digesting our food; they make our delicious cheeses, and some of them are very active in destroying other harmful bacteria. On the other hand, some of them are very mischievous; they cause the decay in apples or other fruit; they sour milk, and they produce many diseases.

FOR GIRLS AND MOTHERS

In fact, it is the disease germs with which we are most familiar; you frequently hear references to the bacteria which cause typhoid, diphtheria, or tuberculosis.

As we can never tell without the aid of the microscope with what bacteria we come in contact, we take the utmost pains to cleanse the body by frequent bathing. To the many good reasons for the bath, which you already know, the fact that it washes away harmful germs must be added.

The daily bath for every young woman we will take for granted. But the ordinary cold plunge is not sufficient. A local bath with soap and water is needed daily. Moreover, all the materials for this bath should be perfectly clean and sweet. Clean towels, and wash-cloths, and fresh clean water are absolutely necessary.

The sponge should never be used. It should have no place in the bathroom. Its many pores are hiding-places for bacteria, and the warmth

CONCERNING CLEANLINESS

and moisture encourage their growth. Many a bath sponge contains millions of bacteria and among them many harmful ones may lurk.

The washbowl or the bath tub may also be a source of contamination. The invariable custom in good housekeeping is to leave bowl and bath tub in perfect order after using. Sometimes, of course, this task is assigned to some one whose care it is: but ordinarily each person leaves basin or tub washed and rinsed for his successor. This is good form in the Pullman sleeping car, also. The bath tub of a hotel or public place, unless it is thoroughly scalded and cleansed, should always be avoided.

We are now taught by boards of health that it is necessary to avoid the use of public drinking cups and of public towels, and it is no less necessary to be careful about the public bath. Swimming-pools are often objectionable because of the increase of bacteria from the bodies of the bathers. Numerous cases of diseases have been traced to such baths.

FOR GIRLS AND MOTHERS

Many readers will know that the great reason for extreme care in this matter lies in the fact that there are certain dreadful diseases which may be carried into the system through the reproductive organs.

These organs are especially sensitive to the invasion of bacteria and therefore they must be especially protected and kept clean. Nature accomplishes this by nearly closing the vaginal opening by a thin membrane called the hymen,—the Greek word meaning virgin. The hymen leaves only a very small opening through which the fluids may pass out. Added to this protection are two folds of mucus membrane and two folds of skin, closely covering the opening to prevent any careless entrance from without. If the external parts are kept from contact with anything unclean, the organs are fully protected.

The germs of these diseases are transmitted by personal contact. This may be through sexual intercourse; or a kiss, perhaps; or even

CONCERNING CLEANLINESS

by the use of the same towels, toilet or bath, that have been used by an infected person. The bacteria causing these diseases may be carried into the system through the lips by means of public drinking cups. These diseases are unfortunately very prevalent. They have often been called the "black plague," as tuberculosis has been called the "white plague." While the "white plague" is more rapidly fatal, the "black plague" brings blindness to children, causes many disfigured faces, produces unsightly sores, and often ends in death. Because of these serious possibilities the utmost care should be exercised to protect one's self from possible contagion. It is not right that young women should be ignorant of the existence of these diseases, and the means by which they are communicated.

The sum of the whole matter is that real cleanness, or cleanliness, means the removal of the outer and accumulated dirt which would clog the pores, and the washing away of any

FOR GIRLS AND MOTHERS

unclean germs which may have found lodgment upon the surface of the body. Sanitary cleanness has come to mean the assurance of the removal of harmful bacteria.

We should not have a complete idea of cleanliness if we failed to remember that it is essential to beauty and attractiveness. It is typical of the inner purity which we love to ascribe to maidenhood.

“Bear a lily in thy hand;
Gates of brass can not withstand
One touch of that magic wand.

“Bear through sorrow, wrong, and ruth,
In thy heart the dew of youth,
On thy lips the smile of truth.”

The essential cleanness is purity of thought. Above all things the young girl should desire cleanness of thought. “As one thinketh in his heart, so is he.” Every clean and pure life lessens the sum of evil and uncleanness in the world; and every girl should help to estab-

CONCERNING CLEANLINESS

lish the love for the pure and good in the hearts of those who know her and love her.

Therefore, "Whatsoever things are true, whatsoever things are honest, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely, whatsoever things are of good report; think on these things."

CHAPTER XXV

CONCERNING MOODS AND EMOTIONS

The human body is a complex and highly organized machine, extremely delicate in its working. The finest hair-spring of the most sensitive watch is cumbrous and heavy in comparison with the nerve that controls the winking of the eye, for example. Every movement—every least activity—of this wonderful mechanism is controlled and determined, as you know, by the nervous system. The eye quickly closes when something is thrust toward it. This is at the command of a nerve. A certain set of nerves controls the muscles of the heart, so that it beats with the regularity of a clock, night and day. Nerves call forth the digestive juices, when food enters the stomach. If one sees tempting food when he

MOODS AND EMOTIONS

is hungry, the mouth waters, as we say. The nerves go to work instantly and send forth the saliva which is to be used in digestion.

Certain activities of the body take place without our direction, and usually without our consciousness. We seldom stop to think that we are breathing; although we may control our breathing and stop it for a time, yet without our thought it goes on. We do not control or direct the beating of the heart, nor the action of the digestive organs. But other activities are always within our control. We walk, for example, when we choose, and as we choose; we run, we sing, we dance, we eat, because we choose to do so, and when we choose.

Are you not also conscious of the truth that you do certain things, not because you thoughtfully choose to do them, but because you feel like doing them? You say as you come downstairs in the morning, "This is a glorious day! I feel just like singing"; or "I can't work this afternoon; I feel like playing." If you stop

FOR GIRLS AND MOTHERS

to think, you will recognize that certain of your activities depend upon feeling, others upon choosing, while others, as we have just said, go on regardless of your choice or feeling.

This chapter will deal chiefly with the relation between feeling and action. In the child this relation is very intimate. He cries when he is hurt; frets when he is uncomfortable; plays when he feels like it; works not at all. As he grows older he becomes accustomed to choosing the thing which is best to do, and right to do, even if it is not comfortable or convenient to do it. Will decides, and feeling can no longer direct.

There is a vast difference in the education of different persons with respect to their feelings. Some grown men and women are still children in this regard. They must do the thing which they feel like doing, and can not do anything else. Certain persons are by nature more given to extremes of feeling than others. If they wish to educate themselves

MOODS AND EMOTIONS

they have a very important lesson to learn.

When a feeling predominates and continues in any individual, we speak of it as a mood. We may be in a glad mood or a sad one; we may be in a pensive mood or a sullen mood. This means simply that we feel glad or gay, pensive or sullen.

Now danger lies in the fact that such moods may become our masters. We may come to feel that we can do nothing except when we feel like doing it; or we may let a mood become so strong that it dominates and controls us completely. When we are sullen we must be sullen and can not lift ourselves out of the mood. "When we are good we are very, very good, and when we are bad we are horrid." Many girls are accustomed to yield to their moods and emotions instead of controlling them. They give no thought to the matter; they simply do the thing that they feel like doing. These girls are laying up stores of trouble for themselves.

FOR GIRLS AND MOTHERS

It is well to begin in the beginning to learn how to deal with these moods. At the time of adolescence, as the girl is growing out of girlhood into womanhood, she is likely to be more emotional, more moody, than she has previously been. She is sometimes irritable; perhaps laughs and cries in the same breath; is extremely sensitive to what older people say; chafes at the restrictions of parents and teachers. She wonders what is the matter with herself and can not understand why she feels as she does. She simply knows that she is restless and uncomfortable.

The girl is not to blame if these conditions arise; but she is to blame if she does not attempt to control them. She should take great pains to be reasonable in her judgment, and to be thoughtful of others; and particularly should she guard against the thing called sensitiveness. This means not that she is more sensitive than others, but that she is thinking more of herself than of others. If she would

MOODS AND EMOTIONS

forget herself, and take for granted that others mean well, she would suffer less and be more helpful and friendly.

At the period when the emotions seem to be uppermost, she is fervid in friendships, and her tastes may be extremely sentimental. In choosing books now the girl must choose wisely. The person she takes for her ideal should be one worthy of her admiration and affection. Good books, good friends, wholesome thoughts, are essential now, not only because the emotions easily impel the girl to unwise choices, but also because the loves and tastes which are developed now may change the current of her whole life.

We have said that there is danger that the growing girl may be too much controlled by moods and emotions. The danger particularly lies in the fact that at this period her moods are likely to be intense and extreme. We have already learned the relation of the nervous system to the other systems of the body. An in-

FOR GIRLS AND MOTHERS

tense mood means excitement. The body responds to any intense feeling by extreme action or reaction. Extreme anger may almost cause the heart to cease beating. It stops the digestion of food; poisons the blood. Any extreme excitement may react unfavorably on the health. This is particularly true of the organs of reproduction; they are weakened and in the end debilitated by undue excitement; by intense emotion and passionate feelings of any sort.

A wholesome natural life, with regular habits, even work and good fun, will mean good health for these organs; but late hours, pleasures which are unduly stimulating and exciting, over-indulgence in food or the use of stimulants of any kind,—are sure to react unfavorably upon their health. This reaction is likely to make its first appearance at the time of the menstrual period, causing pain and other more serious disturbances. It is imperative, then, that the girl should be governed

MOODS AND EMOTIONS

not by moods, but by an even and intelligent will. For the sake of her health she must educate herself in this regard.

If the girl determines to do what is right and best, instead of doing right only when she feels like it, she will be enabled to create conditions which will make and keep her strong and well. She has her health in her own hands.

She should be careful in the choice of food. Highly seasoned foods should be taken only in moderation, as they are too stimulating. Pickles, catsups, spices, etc., should appear in her diet only at intervals. Sweets should not be used in abundance. The excessive use of candy, ice-cream, rich cake, preserves, taxes the system, impairs the digestion, and in the end, causes health to suffer. Meat should not be used too freely; once a day is enough. Vegetables, fruits, cereals and breadstuffs, with a single portion of meat, make the basis

FOR GIRLS AND MOTHERS

of a healthful diet. Study to learn what is included in a wholesome diet.

Exactly as stimulating diet affects the health, so the inordinate reading of exciting books stimulates the reproductive organs. These organs respond readily to such a stimulus. As soon as a girl feels that she is over-excited by the reading of any story which closely holds her attention, she should take pains to enter into some occupation that will take her mind away from the subject by which it has been engrossed. She must teach herself in this matter. No one else can make the choice for her.

In general, the cure for moods is a strong will, determined to be master. If the mood appears, do something to drive it away; exercise provides a sure cure. Sing when you are blue. If you are inclined to become sullen, tell a funny story, and laugh with those who hear it. Enter upon some active work when

MOODS AND EMOTIONS

you are inclined to be depressed; take a bath or run. Do something that requires your attention. In this way you will establish the balance, relieve the tension, and develop a self-control that will be the source of unfailing strength for you and for those who by and by will depend upon you.

I'll tell you how to sing a clearer carol
Than lark who hails the dawn on breezy
down;
To earn yourself a purer poet's laurel
Than Shakespeare's crown.

Be good, sweet maid, and let who will be
clever;
Do noble things, not dream them, all day
long;
And so make Life, and Death, and that For
Ever
One grand sweet song.

—*Charles Kingsley*

CHAPTER XXVI

CONCERNING FRIENDSHIPS

We have just been saying that the growing girl passes through a period when emotion dominates. She is likely to feel deeply even upon ordinary subjects, but at this period she gives attention in a new way to many things. This is the time when the religious feelings awaken, and she considers earnestly and seriously the deeper meanings of life. She is much in need of wise counsel at this time, and it is well for her if she has older friends who sympathize with her in her aspirations and help her to recognize higher and higher ideals.

She begins now to understand the meaning of friendship, and cares much to be with others. She is fortunate indeed if the comrades of her girlhood continue to be her friends. Hitherto

CONCERNING FRIENDSHIPS

she has thought alike of boys and girls as playmates and comrades. They have run races and played together as brothers and sisters in the same family. Now the relation is naturally different, although she may not be fully conscious of the difference. It is better that she should not be conscious of it. Openness, frankness, modesty, womanliness, command the respect and admiration of one's friends. These qualities need not be changed because she is conscious of becoming a young woman, and knows that she is no longer a child. Her relation to the young men who are her friends however should be wholesome and normal, open and friendly, with complete modesty, dignity and self-control. The social life of young people should include natural opportunities for companionship in out-of-door sports, simple entertainments and general gatherings.

Expect your young men friends to be courteous as well as friendly, and to treat you with respect. This is due to all women from all

FOR GIRLS AND MOTHERS

men. The formal expression of courtesy helps to prevent extreme familiarity, which so readily exceeds its bounds. The most friendly relations may exist without undue freedom. You have read the words of Cowper—

“The man that hails you Tom or Jack,
And proves, by thumping on your back,
His sense of your great merit,
Is such a friend that one had need
Be very much his friend indeed
To pardon or to bear it.”

The girl may well take the hint intended for her brother. If it is wise for him to heed the suggestion it is even more wise for her to regard it thoughtfully.

Personal contact, as in the prolonged holding of the hand, means a familiarity which should not be allowed except with very close friends or perhaps with the one friend for whom you care most. And this reserve is due to the young man who is your friend as well as to yourself. A girl may thoughtlessly ex-

CONCERNING FRIENDSHIPS

cite in her friend physical feeling that can only with difficulty be controlled. Maidenly reserve, complete modesty, will teach a girl how to respect the personality of her friend and will enable her to be fair to him.

Even more difficult than the relation to friends of the other sex, may be a false and exciting friendship with another young woman, or even an older one who is not wise enough to be helpful to the young girl. Any friendship which is unusually exciting and demanding, as is the school or college friendship which is sometimes called a "crush," is in its essence unwholesome and unhealthful. Such a friendship causes unusual excitement, and frequently ends disastrously in nervous weakness. A friendship which demands constant physical companionship, which calls for continued caresses, and which can be satisfied only by the immediate presence of the friend, has in it the seeds of weakness, pain, disappointment and sorrow. Such a friendship is not a true friend-

FOR GIRLS AND MOTHERS

ship, having the finer qualities that will endure. One should be sure that no smallest duty of every day is delayed or avoided in order to strengthen such an attachment. This is a good test of the quality of the friendship.

There will come into your lives by and by, a friendship which is the crowning friendship,—when all at once you discover that you have met the person who understands you and whom you understand, who attracts you and by whom you are attracted. The strength of feeling which is developed now is beyond any that you have known. A power stronger than yourself draws you to the new found friend, or the old friend who is all at once known in a new light.

Here again is the great silent miracle of life. Before this the world should pause, with unshod feet. This experience should be met reverently, and with the utmost sincerity. The love that lovers know, which comes with overmastering power, which changes the color of

CONCERNING FRIENDSHIPS

the world, and sweeps all before it, is the great experience of life. Do not let any cheap mood or feeling be mistaken for this deep passion. Love which is to end in marriage and a long life of unselfish devotion, should be clean, clear and strong. Its basis is friendship of the finest sort. It endures only when the lovers are truly friends.

Just as the young girl looks forward to becoming the mother of her child, and so makes her life strong and pure, she should look forward, though she may never acknowledge it, even to herself, to becoming strong enough and pure enough, to be worthy the love of a good man.

Whenever life seems to drift toward cheap pleasures or worthless occupations, turn resolutely back, saying to yourself that you will keep strong and pure and make yourself wise and helpful, for the sake of the man whose wife one day you are to be. Make yourself worthy to be his friend.



SEVEN TIMES THREE

I leaned out of window, I smelt the white
 clover,

Dark, dark was the garden, I saw not the
 gate;

“Now, if there be footsteps, he comes, my one
 lover,—

Hush, nightingale, hush! O, sweet nightin-
 gale, wait

 Till I listen and hear
 If a step draweth near,
 For my love he is late!

“The skies in the darkness stoop nearer and
 nearer,

A cluster of stars hangs like fruit in the
 tree,

The fall of the water comes sweeter, comes
 clearer;

To what are thou listening, and what dost
 thou see?

 Let the star-clusters grow,
 Let the sweet waters flow,
 And cross quickly to me.

“You night moths that hover where honey
brims over

From sycamore blossoms, or settle or sleep;
You glowworms, shine out, and the pathway
discover

To him that comes darkling along the rough
steep.

Ah, my sailor, make haste,
For the time runs to waste,
And my love lieth deep—

“Too deep for swift telling; and yet, my one
lover,

I’ve conned thee an answer, it waits thee to-
night.”

By the sycamore passed he, and through the
white clover,

Then all the sweet speech I had fashioned
took flight;

But I’ll love him more, more
Than e’er wife loved before,
Be the day dark or bright.



CHAPTER XXVII

CONCERNING MARRIAGE

The question with which these chapters began ought to be followed by another question. You have learned to account for the physical beginnings of life. Have you not asked also, consciously or unconsciously, to whom belongs the right to endow and to bring forth a human being?

This is a grave and earnest question. Through many centuries the question has been asked, and the answer has slowly been written in the history of the civilized world. To-day it is recognized and understood that the legal and moral right to perform the act which causes the development of a new life is given only to those who have openly agreed to be united in marriage in accordance with accepted laws which govern the entire community.

CONCERNING MARRIAGE

These laws have gradually been developed out of the experience of the human race. The reason is clear if we stop to think.

If you care to think deeply enough to reach the reason for this law, you may be helped by turning back to the life of the plant and the animal.

Every new life, in the plants and animals which you have studied, begins by the union of a male and a female cell.

In the plants this process of fertilization is entirely involuntary. Neither parent has any choice in the matter. The female cell or ovule lies hidden in the ovary; the male cell ripens and the pod which contains it bursts, leaving the pollen free to be carried by the wind or by some insect until it happens to alight upon the stigma of the plant of its own species in which the ovule is waiting. Then, as we know, the pollen sends down its tube through the stigma to the ovule. Without thought, desire or will, on the part of the waiting plant or the

FOR GIRLS AND MOTHERS

wandering pollen, fertilization takes place and the life of a new plant has begun.

But in animal life the fertilization of the ovum is always voluntary. That is, it is determined by the will and choice of the parents. Nature has endowed all animal life with two overmastering desires, the one desire is for self-preservation; the other is for the continuance of the species. Every one instinctively tries to get out of harm's way when danger is near. If we touch anything hot we shrink away from it. If we see a mad dog approaching, we run. Just as universal and just as strong as the instinct for preserving life is the desire to continue the race and to provide for the coming generation. This desire is born in every animal.

When this second desire dominates the animal, the male from choice seeks the female. The act of intercourse by means of which fertilization is accomplished is an act of the will. Among the lower animals this desire is gov-

CONCERNING MARRIAGE

erned by instinct alone and at times, when fertilization would be possible, this desire becomes very strong.

This sexual appetite, or instinct, is governed in the human being by a trained mind. Instinct gives way to the will which determines its act in view of what is right and wrong, reasonable or unreasonable, wise or otherwise. Because man can see into the future and can profit by the experience of those who have gone before, it is necessary that he control with wisdom and understanding the acts which involve the lives of others.

The natural power to create life by means of sexual intercourse is not limited to those who have openly announced their marriage, and the consequence of unauthorized and forbidden intercourse sometimes means lives of fatherless, dependent and deserted children.

The writer remembers a young girl, beautiful, attractive, well-bred, but untaught and ignorant in many ways. She was engaged to

FOR GIRLS AND MOTHERS

marry a young man to whom she was deeply devoted. Both young people were held in the highest esteem by their friends. The marriage had been set for a distant date, until the young man could prepare the home in which they were to live.

He was suddenly called away to another country and the ship in which he sailed disappeared in a storm, never to be heard from again. All on board evidently perished.

The grief of the friends who learned of the loss of the ship was as nothing compared to the sorrow and bitterness that came with the discovery that the young girl, so dear to all her friends, would soon become the mother of a fatherless child, for the father of the child had gone down with the ship.

It is impossible for youth to understand fully all the disappointment, sorrow and bitterness, which such an experience brings. Every child has a right to be born into the home where the loving care of father and mother awaits

CONCERNING MARRIAGE

him. No one has the right to impose upon the helpless child conditions of want or privation or hardship, but this is done unless the right of bearing children, or causing them to be born, is limited to those to whom the legal right, and not simply the natural power, is given.

Because this act is designed to result in a new life, and because it imposes lifelong responsibilities upon both parents, no one should lightly create conditions which make it difficult for another to obey this accepted law. Modesty, reserve, self-control, are a defense, both for the girl and for her friend. The desire to do what is right will give her wisdom; the determination to choose what is right will make her strong, no matter how alluring or pleasant or strong the temptation may be. For her sake, and for the sake of her friend, and for the sake of others who love her, she should be always pure and wise and strong. This determination will be a strong defense if

FOR GIRLS AND MOTHERS

ever the time of need arises. We should always choose to act so that the future may hold no cause for regret. Sad beyond words, it is, to cause those dependent upon us to suffer through our fault. The consequences of a moment's weakness may be written in long lives of hardship and suffering, with bitter and unavailing regret. The reward of strength and purity will likewise be written in other lives, which have cause to bless the influence which helps them also to be pure and strong.

A girl——

Held all his heart strings in her small white hand;—

His youth and power and majesty were hers,
And not his own; . . . in his young heart
She reigned, with all the beauties that she had,
And all the virtues that he rightly took
For granted; and there he set her with her
crown,

And at her first enthronement he turned out
Much that was best away; for unawares
His thoughts grew noble. She was always
there

And knew it not, and he grew like to her
And like to what he thought her.

—*Jean Ingelow*

CHAPTER XXVIII

CONCERNING PARENTHOOD

“Two faces o’er a cradle bent:
Two hands above the head were locked;
These pressed each other while they rocked,
Those watched a life that love had sent.
O solemn hour!
O hidden power!

“Two parents by the evening fire:
The red light fell about their knees
On heads that rose by slow degrees
Like buds upon the lily spire.
O patient life!
O tender strife!”

All that you have read thus far should help you to understand more clearly than before the sacredness of motherhood and fatherhood. The responsibilities of father and mother are linked together. The love which in the beginning attracted the one to the other is

FOR GIRLS AND MOTHERS

strengthened by a common love for their child, and by the care and labor which each must share for the sake of the child.

The mother, who has carried within her own body the growing child, where it has been protected from all harm, who has nourished it and cherished it, must still bestow upon it her care as well as her affection. Every act and every thought will be guarded in order to secure that which is best for the little one. Her period of sacrifice, and even suffering, continues; it does not end with the birth of her child.

In the same way the father cares for both mother and child. It is his task to endow the home; to provide food, shelter and clothing; but even more essential is the provision of strength and encouragement, tenderness and sympathy, which every noble and generous man brings to his wife and his child.

The growing child needs both father and mother; his life will not be complete except as

CONCERNING PARENTHOOD

it shares in all the good that father and mother together contribute.

It is true, then, that everything which has come into the life of the father or the mother, adding strength or power or grace, endows and blesses the life of their children. For this reason, every girl should desire, with her utmost strength, to enrich her life for the sake of those who will come to depend upon her.

The best possible preparation for motherhood and fatherhood is the natural fulfilment of every day at its best; work, play, study, friendship, school, college, travel; all these are elements which contribute to the making of the father and the mother. No one of these gifts is for the individual alone. He is enriched also for the sake of those who will follow after him.

“———No life
Can be pure in its purpose and strong in its
strife,
And all life not be purer and stronger thereby.”

THE END

